Chahar Bagh Avenue, Isfahan: Genesis and Demise

Pre-Islamic and Islamic Garden Influences in the Safavid Creation and History of its Subsequent Degeneration

Maryam Ahmadi

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Declaration

Abstract

One of the most significant elements in the reconstruction of the historical Iranian city of Isfahan during the Safavid period (late-sixteenth century to late-seventeenth century) was the institution of the Chahar Bagh Avenue and its surrounding gardens. Inextricably attached to the creation of this great public space was the theme of the paradisiacal garden – an enclosure complete with landscaping and planting – tended and watered, which excluded the wilderness. The Garden ultimately resulted in a remarkable synthesis of political views expressed through Safavid architectural, artistic and urban representations. Cultural concepts underpinned by religious beliefs and insights derived from an ancient tradition that predated the advent of Islam played a pivotal role in progressing garden-making ideas over time. The Avenue has continued to characterize the urban pattern of Isfahan; today it remains the most prominent town axis that continues to retain a dialectical relationship between the now-transformed gardens and the ever-evolving city.

Focusing on the Chahar Bagh Avenue's physical configuration – Shah Abbas' (1598-1602 CE) masterpiece – this thesis traces the genealogy of how intangible and tangible features were employed in the design of the Chahar Bagh to synthesize complex ideas of garden design that had evolved over time. The thesis considers diverse examples of gardens to define this genealogy – from the pre-Islamic gardens of the Achaemenids and Sassanids to the Islamic gardens of the Middle East, Spain, Morocco, Italy and central Asia, as well as the Mughal gardens of India – to identify changes within continued parameters involved in this evolution. Based on the hypothesis that adherence to the Qur'anic image of Paradise was an important aspect of the Safavid period, this thesis investigates and explores the possible influence of two factorial categories on the planning of the Chahar Bagh Avenue and, in particular, the design of the formal quartered gardens of the Chahar Bagh. Of these the first is the impact of the ancient and Islamic Persian garden pattern, and the second is the representation of Paradise in the Qur'an and the impact of the celestial image of Paradise as depicted in the Islamic Persian gardens. The thesis also chronicles the Chahar Bagh's eventual degeneration into an urban artery in the post-Safavid period under the Qajar dynasty (1878-1925) and the various attempts at its partial preservation under the Pahlavids (1925-1979).

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Glossary of Persian Terms

Abrisham: Silk

Baagh: Garden

Bagh-i Hizar Jarib: gardens of Hizar Jarib

Bala Khane: Gateway

Bala: Upper

Bazaar: Market square

Behisht: Paradise

Bulbul: Nightingales

Chahar Bagh: Four garden

Chenar: Sycamore tree

Dargah/ Imarat-i sardar: Gate building

Jubes: Narrow streams

Khiaban: Avenue, street

Madrassah: school

Maidan-i Qadim: Old square

Masjid: Mosque

Nisf-I Jahan : Half of the world

Pa-in: Lower

Pardis: Paradise

Qanat: Subterranean

Shah juy: Main streams

Siose pol: Thirty three Bridge

Taghe Sabz : Green vault

Takht :Throne

Talar: Hall, Saloon

Tutestan: Mulberries

Research Introduction

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1.2- Statement of The Problem

1.3- Research Aims

1.4- Research Question

1.5- Research Method and Methodology

1.6- Data Collection and Analysis

1.6.1- Phase-1: Data Collection

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1.8- Hypothesis

Chapter 1: Research Introduction

1.1.- Literature Review

> "The real gardens and fruits are within the heart;
> The reflection of their beauty is falling upon this water and earth" (Jalaladdin Rumi, 1930: 347)

Kevin Lynch had commented that a city is a dwelling place reflecting the lives of its inhabitants, their traditions, their culture, and the collective personality of its people. Therefore, the best way to understand the urban spaces is to investigate the process of their configuration in different periods (Lynch, 1960).

The historic city of Isfahan, in the heart of the Iranian plateau, experienced many cultural shifts in its history because of the various ideological and religious beliefs of the rulers who chose Isfahan as their centre of power. Among all the dynasties that chose Isfahan as their capital, the Safavid are the most famous, mainly due to the form and design which was imparted to Isfahan's distinguished physical pattern and architecture by Shah Abbas I (1598-1602), the fifth Safavid Shah. The first settlement in the area existed from the pre-Islamic period where the original city was located on the outskirts of where the city stands today. The initial urban core dates back to at least the seventh century when the settlement of Yahudieh was linked to Khoznian and the town developed around an area enclosed by walls. Isfahan had been chosen as the capital in a subsequent period of the Seljuqs in the eleventh century. A palace, bazaars and mosques had been built around a square in the heart of the former town. The urban feature of Isfahan before the Safavid period was a compact and irregular structure, enclosed by walls and lacking in any green area (Amiri 2009: 186-211).

In the late-sixteenth century, the Safavid changed the image of the city by applying an ordered and pre-determined plan for the urban pattern of Isfahan, mainly to the southern part of the existing town. This new plan followed the principles of early-Islamic town planning – a mixture of nuclear and linear patterns covered by the adjacent residential areas – with great emphasis on its geometry and the green walled spaces (Blunt 2009: 54-63). The new layout included two main foci for the city: first, the square, Maidan-i-Shah – a large public space for the city (a rectangle of 510m x165m) surrounded by mosques, palaces and shops, and secondly, the linear axis,

Chahar Bagh, with pavilions and surrounded by gardens. Many have suggested that old Isfahan was a prime example for the new one, meaning that the new Isfahan was a logical evolution of the old one. However, the establishment of Chahar Bagh Avenue and its gardens clearly played a crucial role in the transformation of Isfahan's urban planning. In the light of this, the research is mainly concerned with the particular Avenue – the Chahar Bagh – and its structure. This thesis is a search for the premise on which the Chahar Bagh, the famous Safavid Avenue in Isfahan, was created.

The Safavid Chahar Bagh is a extensive boulevard, built under Shah Abbas I to the west side of Maidan-i-Shah running some four kilometres from the Royal Gate (Darvazeh Dulat) to the Zayandeh Rud River, and terminating at the Hizar Jarib Garden – a royal estate south of the river. Kaempfer stated that more than 30 gardens of the court and government lined both sides of the Chahar Bagh (Kaempfer [1712] in Wilber 1979: 79-120). Today, only the outline of the Chahar Bagh gardens remains in place, and all of the gardens except for Hasht Behesht have been completely lost (Karimi and Motamed 2003: 1-16).

The Pre-Islamic Garden

Scholars in the field of garden studies, including James Wescoat, Pope, Donald Wilber and Ruggles, have believed that the importance of cosmological ideas in Persian thinking and their early reflection in pre-Islamic architecture undoubtedly impacted on the patterning of the Chahar Bagh gardens in Islamic period. Moreover, it has been suggested that the Quranic image of Paradise and Islamic cosmological ideals may well have affected the Chahar Bagh and the quality of its architectural spaces. However, such suggestions have never been explored in adequate detail to unravel how precisely the ideals could have manifested in the organisational structure or its architectonic and landscaping details (see, for example, Gharipour 2013: 44-47). Based on Henry Corbin's study on the Mazdean cosmology, Alemi argues that the Persian *chahar bagh*, including its various constituent elements, is collectively a symbol of the universe (Alemi 2013). In *chahar bagh*, the terraces symbolize the cosmic mountains and the creation of the edifice or throne at the highest level represents the position of the God. A great pool is placed in front of the edifice representing the cosmic ocean as the source of all waters, which can irrigate

the whole garden. The presence of trees, flowers and animals around the edifice complement the figure of the universe (Alemi 2013).

Based on these suggestions, the hypotheses could be put forward that, Chahar Bagh Avenue represents both the layout of ancient Persian gardens and the image of the Paradise, also reflected in other gardens of the Islamic times. The spiritual concept of Sufism[1] as a prevailing ideology in the Safavid court could have been a major force for imparting such a spiritual dimension to an undoubtedly formal and regal space and its surrounding gardens.

According to the description of Pascal Cost, a French architect, following his visit to the city of Isfahan in 1840,

> Four parallel rows with the total distance of 4 km which were extended full length of both the upper and lower Chahar Bagh in north and south of the River. The central section was for pedestrians in which a water channel ran down the middle. The water channel was intersected at intervals by other waterways. On either side of the pedestrian way were lanes for riders, separated from central pathway by strips of painting. The middle section is still served as pedestrian route but there is no water channel now and the sides are using for vehicular traffic. The two sides of the Avenue are now lined with offices, shops, and cinemas (Cantacuzino and Browne 1976: 284).

Descriptions by travellers[2] who visited Safavid Isfahan indicate their impression of Isfahan as a huge, smooth, green carpet, traversed by the blue line of the Zayande Roud River (Walcher 1997: 334-350). Sir Thomas Herbert (1627-1629) described Isfahan as "the metropolis of the Persian monarchy … the greatest and [the] best built city throughout the orient" (Herbert quoted in Walcher 1997: 334). In his *A Journey to Persia,* John Chardin noted: "Isfahan with its suburbs, which occupied more space than the city itself, was the largest city in the world which is similar to a forest from every direction" (Chardin in Ferrier 1996: 60).

Henri Stierlin (2002) believed that the plan of Shah Abbas to extend a large open space between the old city of Seljuk and the banks of the Zayande Roud River starting with the great formal avenue of the Chahar Bagh made Isfahan a garden city, which would not have been possible without the life-giving river of Zayande Roud

[1] Classic scholars such as Ahmed Zarruq describe Sufism as "a science whose objective is the reparation of the heart and turning it away from all else but God." (Zarruq quoted in Valmiki 2015: 74)

[2] Some of the travellers who visited Isfahan during the period of Shah Abbas I were: Pietro Della Valle (in Isfahan in 1619), Thomas Herbert (1628), John Chardin (1660s-70s), John Fryer (1677), Engelbert Kaempfer (1684-85), and Pascal Coste (1841).

(Khodabakhsh 2008: 102-113). However, typical of many descriptive studies of Isfahan, Stierlin's observations never extended into an explanation of how the ideas and concepts underpinned the formation of this spectacular garden in the middle of the desert.

The earliest form of garden for which Persia is famous dates approximately from the sixth century BCE, by the Achaemenid emperor, Cyrus the Great. The Pasargadae plan of shows a series of pavilions placed within a walled enclosure. Such a form of organisation represents a typical way of nomadic life with its multiplicity of spaces where the distinctions between rooms and buildings were blurred and more based on negotiating climatic variations rather than utilization of space. This dispersed type of design has little in common with later Safavid gardens of Chahar Bagh, where a single large pavilion at the highest end of the garden provided a spectacular view of the space for the visitors and inhabitants, and edges of the garden contained many functions. This apparent contrast will have necessitated progressive changes and evolution over time, from the point of its generation in pre-Islamic time until its perfection in the Safavid period, passing through an extended period of refinement and resignification during the Islamic period. Such evolutionary considerations have never been taken into consideration by scholars in the study of the Chahar Bagh Avenue.

The Early-Islamic Gardens

Following the advent of the Arab Muslims – who had no tradition of gardens of their own – into Sassanid capitals, they were confronted by the lush green gardens that Iranians had maintained for at least a thousand years. Thus, the practice of the Persian garden was employed in Islamic landscaping. Some examples of these early Islamic gardens existed in mostly permanent settlements located in some areas far from the urban centres, such as Khirbat al Mafjar in 745CE, Ukhaidir in 780 and Samarra in 836 (Turner 2005: 81-107). However, virtually no traces of these early examples exist. What exists is the subsequent incarnation of the Islamic garden type wherever Islam expanded next: into Sicily, south of Spain, and along the coast of north Africa. Thus analysing these extant earliest examples of Islamic gardens is crucial to highlight the innovated features in their designs. As I will aim to demonstrate, Chahar Bagh is a remarkable example of Islamic garden landscape and

architecture in Isfahan, which was influenced by these several earlier examples of Islamic garden type built by the Muslim rulers.

This influence of these early development westwards, as I will discuss, could be traced in the next generation of gardens formed in central Asia and in India. The beginning of the Mongol conquest of the Islamic states was marked by the invasion of Iran from 1219 to 1221 CE. When after Timur the Lame (Tamerlane) invaded the whole of Asia he chose Samarqand as his centre of power. The Timurid civilization brought together central Asia, North India, Persia, Mesopotamia, Syria and Asia in one single empire. As Nattaj contends, later Herat in present day Afghanistan and the Mughal Empire established by Babur got influenced by it (Nattaj 2014: 6-9). Samarqand's landscaping can be considered a specific style of gardening due to the following three factors: a) inspiration from pre-Islamic Persian gardens; b) Timur's central Asian nomadic lifestyle (living under the shade in a tent and enjoying a 360° view of the surroundings); and c) a sense of mastery over the four corners of the world (sitting in the main pavilion on a man-made mound with nobility to the four sides) (Nattaj 2014: 6). Timurid gardens introduced a number of innovative features into the art of landscape design, and as I will demonstrate, will have led to the creation of different forms of formal gardens, a feature repeated in the later Safavid gardens.

The big gap in the study of the Chahar Bagh in Isfahan is the lack of an enriched approach to the possible connections between previous garden designs and the creation of this garden structure around the Avenue. This gap has led to the ignorance about the long-continued history of garden design in the Middle East and in the Islamic world – as the most crucial inspiration point, which had a great influence in designing the concept, form, function and even components of Chahar Bagh. Thus, studying pre-Islamic and Islamic garden examples preceding Chahar Bagh is required to understand the components of the garden and how they were assembled. This will also help us to distinguish the various features which influenced the concept, form and function of the gardens from their origin in Achaemenid period to their perfection during the Safavid period.

Garden Components and Flora

Chahar Bagh used to be a place in which geometry, order, harmony and of course materials must have created a place of relaxation: under the shade of trees and by the sound of water that flowed in small streams. This description of relaxation in Islamic gardens by Stein (2007: 154) is comparable to the explanation of paradise in Quran where it has been stated that the Judgment Day will take place "in gardens of pleasure": those who pass the judgement will enter into the gardens, continually verdant, cooled by springs, fountain, and shaded by trees (Gothein 1966: 55). According to Brooks "each paradise garden would contain fruit, trees, and pavilions, and was intended as a place for enjoyment and coolness" (Brooks 1987: 197). For nomadic people who experienced the reality of desert life, such a landscape was easily acceptable as the image of the ultimate perfection of Paradise.

The superior feature for which Iranian gardens were famous, and this is applicable to the Chahar Bagh also, is the abundance of flora. The rose predominates in the realm of Persian flora and it seems that the Persian word "gul" should be both the word for rose and the general term for flower (Wilber 1979: 20-119). "Gul" appears in a number of other compounds such as: Gulistan which is Rose garden, Gulshan and Gulzar which is flower garden, gulgasht which means pleasure ground and even the song if nightingale is Gulbang (flower cry). Chardin, who visited Iran in seventeenth century, provided a summary of terms used for flowers in Persian gardens. It offers an excellent introduction to show the existence and importance of flora as the key characteristic of Chahar Bagh, which cannot be understood from the currently existing situation of Chahar Bagh: "…. In Isfahan jonquils increase by themselves and there are flowers blooming all winter long. In season there are seven or eight different sorts of narcissus, the lily, violets, and Spanish jasmine…." (Chardin quoted in Wilber 1979: 25).

Artists were encouraged to create careful drawings of plants and flowers to be enjoyed where the gardens were not in full bloom (Wilber 1979: 25-37). The main source of inspiration for the creation of such arts was the gardens. Therefore, Persian art, including carpets and miniatures, could be considered as the catalogue of long-lost ideas of ordering and flora in mediaeval Islamic gardens. Such study – never before undertaken – of geometry, flora and even activities that used to be take place within the gardens, is to benefit us in understanding key aspects of the garden evolution, which cannot be studied through the extant examples. Wilber, in his book,

Persian Garden and Garden Pavilions mentions that, "Gardens influenced art forms and were in turn influenced by certain artistic motives and styles" (Wilber 1962: 31), the analytical contribution from Persian carpets and miniatures has been beneficial.

Garden making has proceeded right through early Persian culture and wherever Islam expanded: into Sicily, south Spain, along the coast of north Africa, central Asia and back to the Safavid Persia to demonstrate the perfection of Perso-Islamic image in the Chahar Bagh and into the Mughal gardens of India to show the excellenct image of Paradise in the Taj Mahal. Evolution of the Chahar Bagh requires a chronological study of geographically dispersed Islamic gardens in order to investigate the possible linkage between pre-Islamic and Islamic gardens through the analysis of the extant garden examples, as well as through carpets and miniatures to understand its organisation and flora. This is an approach never adopted before and thus could be an introduction to a more detailed study of the Chahar Bagh to explore the change or continuation of concepts, form and functions.

Present State and Degeneration

Following the demise of the Safavid Empire, concomitant with the invasion of Iran by the Afghans in 1722 CE, the population diminished as a result of fighting and widespread atrocities. Despite economic and political upheavals, Isfahan remained the country's political center until it lost its role as the capital and also the royal residence status due to the rise of Nadir Shah and the move of the headquarters to Mashhad. Aqa Mohammad Khan, the founder of the Qajar dynasty chose Tehran as the capital city in 1785 CE, thus the political importance and urban status of Isfahan inevitably faded; however, its epithet, Nisf-i-Jahan (meaning 'half of the world') survived (Walcher 2000: 327-347).

Since all the components of the Chahar Bagh – the pools, the canals and the pavilions – have been demolished due to the wilful destruction during the Qajar Period, and the ill-considered modernisation attempts in the subsequent Pahlavi Period in the early-twentieth century, a comprehensive architectural documentation was infeasible. No detailed studies of Chahar Bagh and its pavilions exist; therefore, the main sources available on Chahar Bagh are the writings of the historians and travellers who journeyed to Isfahan during the seventeenth century.

Aside from a detailed assessment of the contemporary state of the Chahar Bagh Avenue, the extensive fieldwork undertaken therefore was also directed towards

identifying the primary sources, which I discuss in detail in Chapter 7. Here I identify the important maps and drawings located in archives and other public and private collections, which enabled me to analyse the chronological evolution of the Garden. Subsequently, in Chapter 9, I investigate the possible reasons that led to its degeneration in the Qajar and Pahlavi periods. Yest again, no clear account exists of this, even following the advent of the first modern master plan for Isfahan.

Another primary source for my investigation is the Qur'an, where the Islamic idea of the Paradise has been articulated through a number of celestial images as believed by Persian-Islamic culture, which formed an integral part of the Chahar Bagh design. The *Paradigms of Paradise* by Azade Shahcheraghi (2012) is a valuable Persian source that investigates the garden's structure, categorised from smaller scale courtyard gardens, to bigger scale garden cities. Further valuable resources can be found in the ancient Persian motifs, which are mostly discussed in Chapter 8. Although not a primary source, The Cambridge History of Iran (the second and fourth volumes, 1986), nevertheless, has proved invaluable in providing comprehensive information on the historical background of Iran and Isfahan since the Safavid period. In addition to the detailed information about Persian art and architecture, it also includes a brief yet helpful explanation about the economic and political situation of the city during the Safavid Empire.

Not having a clear account of the genealogy of the Chahar Bagh, and the pre-Islamic and Islamic precedents that contributed to the development of the Garden, is a gap the literature review identifies. The idea of 'Paradise', developed originally in Zoroastrianism and later refined in the Quranic concepts, has been identified as a force behind garden design but never explored in the context of the Chahar Bagh. The nature of ordering and especially, the flora – crucial to the successful manifestation of this – is difficult to discern from the extant nature of much of the Islamic gardens. Their nature have been indelibly altered by subsequent local and colonial presences who paid scant attention to these details. The literature review identified this and established the principal source for a renewed understanding: the rich heritage of Persian carpets for organisation and miniatures for flora and activities. The gap in our understanding of the reasons for Chahar Bagh's demise has also remained unclear.

1.1.1- Statement of the Problem

Since all of the Chahar Bagh's pavilions, pools, and canals have been removed due to the ill-considered modernization since the Qajar Period (1785-1925), there has been no clear academic contribution in understanding the Chahar Bagh and the role it plays in the present-day urban pattern of Isfahan. Significant literature is available from travellers who visited Isfahan during the sixteenth and seventeenth centuries and who described Isfahan as a paradise. However, all of the accounts are metaphorical evocations about the city and to the best of my knowledge, there is no in-depth study in this field.

On the other hand, writing in the journal of the *Middle Eastern Natural Environment*, Walcher addressed the issue the religious principles that informed every aspect of city life, the religious concept of Paradise in itself is not sufficient to explain the pattern of creation of Persian gardens as the initial concept of Chahar Bagh (Walcher 1997: 327-347). The power of religion in the Safavid period and in the Islamic gardens was an integral and important point of reference in the conception of Chahar Bagh. However, the impacts of the aforementioned facts on the creation of Chahar-Bagh have not been fully studied (Cantacuzino and Bowne 1976: 255-301).

Another key question which motivated me in doing this research is that, although the descriptions of travellers such as Pope and Andre Godard explained the Chahar Bagh as a promenade axis for the inhabitants, essentially a broad 'Persian garden carpet' applied three-dimensionally within the city, no study has yet addressed the question of how the spatial organisation of the Avenue which has taken the name of Chahar Bagh, thereby reflected the chahar bagh gardens in its form and structure under the Safavid time.

In terms of urban study, Chahar Bagh was essentially a garden, which facilitated access to the Royal Gardens and, with its long north-south axis, marked the urban pattern of the town. It also linked the four quarters of the city at the point where it crosses the river. Existing studies of Chahar Bagh show the lack of consideration regarding the importance of this Avenue in the challenges involved in the development of the new urban pattern. Finding a possible answer to the mentioned problem means to fill the main gap in some of the hypotheses that have been put forward which, I believe, ignore the crucial role of the Chahar Bagh in the construction of new Isfahan.

Hence, the aim of this research is to highlight the importance of this Avenue as the main backbone for the urban pattern of Isfahan during the Safavid which influenced the future of urban development in Isfahan. Emphasis on the importance of this axis addressed the contributory factors in the development of this Avenue in Isfahan.

1.2- Research Aims

The aim of this study is to identify major factors and concepts associated with the development of the garden in the pre-Islamic and Islamic periods that led to the creation of the Chahar Bagh Avenue in Isfahan, and their role and interrelationships. This will highlight the changing meaning of the gardens over time up to the present day and focus on recovery of their original meanings. Furthermore, this research seeks to investigate whether a relationship exists between the religious and cultural beliefs of local inhabitants and the creation of the urban pattern of Isfahan with a focus on Chahar Bagh.

1.3- Research Question

The key question in addressing the aims of this project, highlighted previously, can be established as

What does this Avenue reflect in terms of possible influences of gardens?

This question has been addressed through providing the answers for the following sub questions;

- How did this Avenue evolve from a simple pattern of pre-Islamic gardens into a masterpiece in its heyday?
- What is the influence of and linkage between pre-Islamic and Islamic gardens and the creation of this Avenue?
- How and why has the design of the Avenue changed over time, including the present day?
- What has changed, what has not changed and what are the possible reasons for such change?

- What is the influence of changes in geometry, use, greenery, built area, water, structure, circulation, the use of routes and the proportion between green and non-green areas?

Thus, two categories of investigations are crucial in answering the above questions; first is the impact of the ancient Persian garden pattern on the physical structure of the formal quartered gardens of Chahar Bagh Avenue. Secondly, the influence of Islamic gardens and Iranian religious-cultural beliefs on the physical structure of the formal quartered gardens that led to the creation of Safavid gardens. The result of mentioned investigations has defined a proper approach in urban planning of the Safavid period that can be used in the future to address further questions regarding the urban pattern of Isfahan.

1.4- Research Method and Methodology

Following the theory of Kaplan quoted by Groat and Wang in *Architectural Research Method*, both terms of method and methodology are employed with reference to the processes of architectural research (Groat and Wang 2002). In historical and heritage inquiries, researchers try to collect as much data, evidence and information as possible about an observable fact and seek to provide an account of that phenomenon. This involves searching for evidence, collecting and organising data, and interpreting and building a narrative from believable and historic evidence. The key fact in this procedure is interpreting (Groat and Wang 2002). The strategy I have used in my research is grounded theory in which data collection, analysis, and the eventual theory which could emerge as and outcome of data "that is meaningful in certain contexts from observations and the observers' consensus (Suddaby quoted in Cho and Lee 214: 2) stand in a close relationship to each other.

According to the available literature, studying the Chahar Bagh Avenue has not been undertaken in a cohesive way, therefore the collection of data in terms of drawings and maps, as well as academic understandings that exist within the Iranian academic world had to be collected. Therefore, the method I have chosen for my research is a combination of grounded theory and the interview approach, one of the persons interviewed is a key scholar in the field of Isfahan's heritage and architecture, Dr. A. Jabal Ameli, an Architect who has acted as senior consultant and head of Isfahan

Cultural Heritage, Handcrafts and Tourism Organization. The content of interviews was mainly focused on the evolution of Isfahan during the Islamic time and investigating the Islamic viewpoints in completing the image of Isfahan specially during the Safavid time. Another interview was conducted with Dr. A. Shojaei, the head of Chahar Bagh Avenue's excavations in Isfahan's Ministry of Cultural Heritage. The interview was mainly focused on the continuation and changes that happened to the Chahar Bagh Avenue from after the transformation of capital from Isfahan to Tehran during the Qajar period.

This research examines the possible architectural, cultural and religious features in the design and construction of Chahar Bagh Avenue as a crucial masterpiece in Isfahan during Shah Abbas' period, by relying on Persian literature, writings of western travellers and present-day local street and neighbourhood names in Isfahan. Accounts given by local residents (shop owners), on the other hand, focused on the layout and usage of the avenue, provide supporting evidence regarding the changes Avenue that happened resulting in the current situation of the Avenue from the second Pahlavi to the current day, as well as the persistence of some elements in the original layout. Collection of existing maps of the town - historical and modern – has led to a better understanding of Chahar Bagh's context and the reasons behind its conception.

The outcome of this research will generate a hypothesis for the creation of this Avenue based on the history of both, pre-Safavid and Safavid Isfahan, as well as pre-Islamic and Islamic gardens' components and the way these were applied to terrestrial gardens (Figure 1).

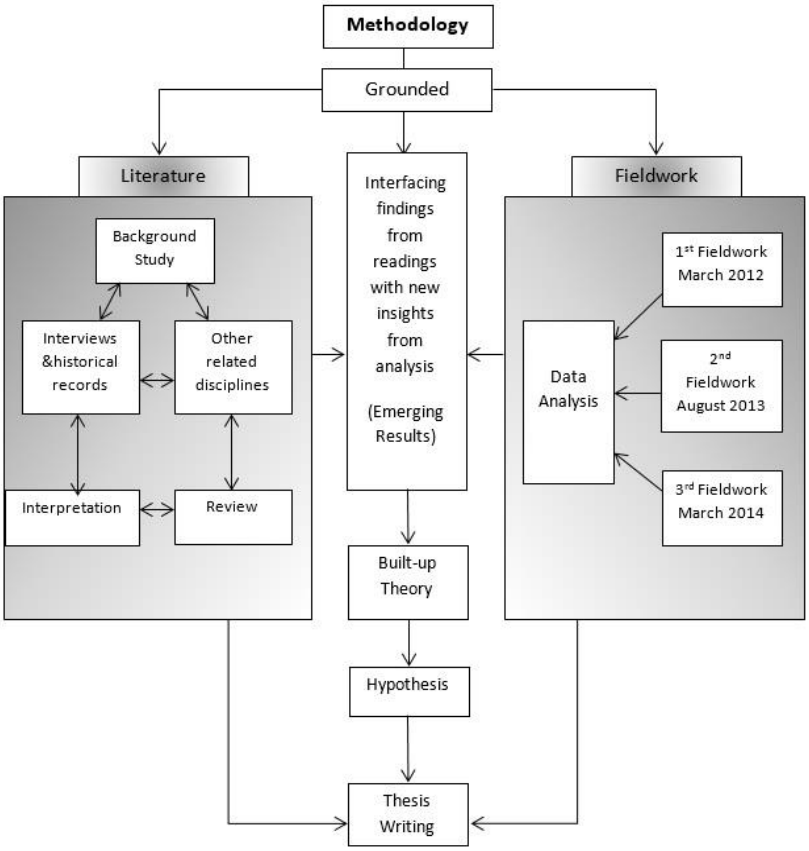


Figure 1: Research methodology design (Author 2013)

1.5- Data Collection and Analysis

The grounded methodology I have chosen was developed by Glaser and Strauss in which theory may be generated initially from data or if existing (grounded) theories seem appropriate to the area of investigation (Corbin and Strauss 2008: 273). This methodological approach consists of three phases. Phase-1 is data collection based on literature reviews (all existing literature and reports from the Safavid dynasty), fieldwork conducted in Chahar Bagh (photographs, drawings, notes, maps), and the combination of interviews carried out with experts in the field of architecture and heritage. Phase-2 is data analysis and interpretation through methods which are discussed later. Phase three is to elaborate a theory of the influence of Islamic and pre-Islamic Persian gardens on Chahar Bagh Avenue as a result of interfacing findings from the literature review with findings from analysis and interpretation of maps, paintings and rugs.

1.5.1- Phase-1: Data Collection

The key step in my data collection, along with the literature review, is fieldwork. Documentation and fieldwork consisted of: a) Interviews with well-known scholars in the field of Islamic architecture and urbanism to obtain information about the city pattern and history of the Chahar Bagh. This contributed to understanding the social, cultural, historical and architectural value of the Avenue; b) Collection of survey drawings (plans, elevations, sections and 3D drawings) of the city components and Chahar Bagh Avenue from the city genesis, Safavid period up to date and their cataloguing through inventory sheets; c) Digital photographic survey of Chahar Bagh and surrounding historical sites, and their cataloguing through a separate set of inventory sheets; d) Collection of aerial photographs and historical large-scale maps of the city and Avenue from the Ministry of Cultural Heritage and Tourism which are appropriately scaled down and analysed; e) Collection of Persian and English literature from local and university libraries in Iran; and finally, f) Collection of existing documents of project managements, reports, heritage plans and touristic proposals from Iranian consultants. A season of fieldwork took place between March 2013 and March 2014 and background literature was collected and reviewed.

During the first season - March 2013 (two weeks) - interviews with Dr Jabal Ameli and Dr Shojaei well-known scholars in the field of Isfahan heritage and Islamic

architecture, were conducted and translated. The second season took place in August 2013 for 18 days. During this time, inventory sheets were prepared in addition to material collection and data and maps organisation (refer to Appendix-1). During the third season, March 2014, which took almost two weeks, further photographs were collected to obtain a better understanding of the Avenue.

1.5.2- Phase-2: Analysis

The main resources for this phase are is Persian and non-Persian literatures. Most of the Persian literature resources collected are by well-known scholars in the history of Iran and Islamic architecture, whose work focuses on urban design and landscaping. These resources have been reviewed and cross-checked with the writings of travellers who visited Iran during the Safavid dynasty. The literature review helped me trace the urban expansion in Isfahan before and after Islam up to the Safavid period. It also helped me to track the crucial features which highlighted the urban pattern of Isfahan during the Safavid dynasty by focusing on the innovation of Chahar Bagh axis. This led to an exploration of the possible factors that led to the creation of Chahar Bagh in Isfahan and its relation to the surrounding gardens. Next, the literature led me to propose a definition for the meaning of Chahar Bagh in Persian literature. The cultural beliefs behind this helped in understanding the structure and organisation of Chahar Bagh in relation to surrounding urban constructions. Next, the main concept of the Persian garden and its key components was defined in order to establish if and how these patterns may have been completed during Islamic times and reflected in the construction of the Chahar Bagh.

The analysis of the aerial photos and historical maps took place within the second part of Phase-2. The maps and photos collected from the Safavid and current times were analysed to identify the morphological development of Chahar Bagh, and its land use, as well as defining the location of Chahar Bagh with respect to the surrounding natural environment (like the Zayande Roud River) and both the historical and modern built environments. This phase also helped me define the changes that took place in the proportions of green and non-green areas over the course of history in this Avenue. The method I employed to carry out this phase of the research consists of description, analysis and interpretation of the physical features and pattern of the Chahar Bagh, as well as spatial contemporary land use

and analysis based upon the printed overlap evidence of the aerial photos and city maps.

After undertaking a detailed analysis of the whole extent of the Avenue and its surrounding gardens, all the structures and features of the Safavid Avenue and the present-day Avenue have been mapped and colour-coded, based on interpretation of the interviews and personal observation during fieldwork. These architectural features consist of the previous and current components in the Avenue such as central walkway, ponds and pools, greenery patterns including palace gardens along the both side of the Avenue, the geometric patterns in the Avenue and the surrounding gardens, and connection routes around the Avenue.

1.6- Developing the Theory

Shah Abbas's innovation in urban planning reflected the statement of Kevin Lynch that "urban space is not only a composition of physical characteristics but equally by representations in mental images" (Lynch 1960: 172). Lynch considered two fundamental features of imageability and legibility, which he argued, led to shaping a successful and memorable urban settlement. These were: imageablity, by which visual quality of urban objects help to shape a strong image of the city in the mind of citizens, and legibility, a feature that makes urban spaces clearer and readable for citizens. A creative mix of natural and man-made urban components could advance the impression of imageability and legibility of a historic city's urban pattern, such as Isfahan. Lynch further considered five elements for the realizing of urban legibility and also imageability: landmarks, paths, nodes, districts and edges. A key theoretical underpinning to understand and analyse Isfahan is thus provided by Lynch's five elements. These five elements have been employed in Chapter 2 to understand the urban pattern of Isfahan from the sixteenth century until the present time.

Another theoretical approach which has proved useful in understanding and analysing the evolution of garden into the particular Safavid example under consideration here are concepts of power and its potential relationship to landscape architecture, as expressed in the thoughts of the French sociologist, Pierre Bourdieu. Garden as a location for the representation of power has been repeated from the gardens of the Achaemenid in pre-Islamic time and was transferred to the Timurid gardens of central Asia and subsequently to the gardens of Babur in India, all of

which influenced the Safavid gardens in Isfahan. Bourdieu approaches power within the context of a comprehensive 'theory of society'. Although his subject was mainly Algerian and French society, Bourdieu's approach is useful in analysing power in development processes of gardens, the main interest of this thesis. He believes that 'habitus' is the main factor in shaping our actions and it plays an important role in construction of our social world as well as being influenced by the external. Habitus, '[a] structuring structure, which organises practices and the perception of practices' (Bourdieu 1984: 170), is intricately linked with the social structures within a specific field and essential to the sociological analysis of a society. Bourdieu sees power as culturally and symbolically created, and constantly re-legitimised through the interplay of agency and structure. Habitus is created through a social, rather than individual process leading to patterns that are enduring and transferrable from one context to another, but that also shifts in relation to specific contexts and over time. Habitus could be changed 'is not fixed or permanent, and can be changed under unexpected situations or over a long historical period' (Navarro 2006: 16).

'Capital' is the other important concept in Bourdieu theory of power. Capital, in his viewpoint, extended beyond the notion of material assets to capital that may be social, cultural or symbolic (Bourdieu 1986, cited in Navarro 2006: 16). These forms of capital could be transferred from one arena to another where they might be equally important (Navarro 2006: 17). Cultural capital – and the means by which it is created or transferred from other forms of capital – provides the means for non-economic form of domination, which plays a central role in societal power relations (Gaventa 2003: 9). The shift from material to cultural and symbolic forms of capital is to a large extent what hides the causes of inequality. This idea of Bourdieu is beneficial to show how the 'social order is progressively inscribed in people's minds' through 'cultural products' including architecture and landscape design, as well as systems of education, language, judgements, values, methods of classification and activities of everyday life (Bourdieu 1986: 471). These leads to an unconscious acceptance of social differences and hierarchies, to 'a sense of one's place (Bourdieu 1986: 471)' and to behaviours of self-exclusion.

This concept of Bourdieu, which I discuss in Chapter 7, as well as that of Lynch concepts of imageability and legibility, and five elements of landmarks, paths, nodes, districts and edges which has been discussed in detail in the Chapter 2, have been

employed to understand how Shah Abbas proceeded to make Isfahan the symbol of Safavid power following 10 years of military confrontation with the Ottomans.

1.7- Thesis Outline

Chapter-1 introduces the thesis, to provide the reader with an overview of the research problem, the aim, key questions and methodology. Chapter-2 presents a discussion on the genesis of the city of Isfahan in order to highlight the fundamental phases in the urban and architectural development of the city which eventually led to the construction of the Chahar Bagh and its surrounding gardens during the Safavid period. Chapter-3 deals with Safavid urbanism and architecture – particularly the Chahar Bagh Avenue – to highlight the importance of this axis in changing the urban image of Isfahan under the Safavid, as well as introducing the physical aspect of the Chahar Bagh Avenue and its surrounding gardens. Chapter-4 analyses the concept and etymology of the *chahar bagh* – the four-quartered garden – to demonstrate how the name and the concept characterised the later gardens of the Chahar Bagh and the Avenue itself. To establish the key components involved in garden design over the centuries I also discuss the genesis of the *chahar bagh* layout and the early *chahar bagh* gardens in ancient Iran.

The gardens of the Islamic times – those from the Middle East, North Africa and Europe – are the main subject matter of Chapter-5; they are to identify the continuities and changes to the key elements in the art of garden design under Islam. Chronologically, the gardens of central Asia and Mughal India emerged after the Islamic gardens of the Middle East and the West, but before the Safavid gardens of Isfahan's Chahar Bagh. An analysis of the Timurid and Mughal gardens is undertaken in Chapter-6 to investigate the innovations in the Timurid gardens which influenced the later Safavid gardens. Chapter-7 analyses the reflection of the pre-Islamic and Islamic garden concepts and components in the creation of the Chahar Bagh Avenue and its surrounding gardens in Isfahan. The chapter also illustrates the cultural and religious environment that existed in seventeenth-century Isfahan, which possibly affected the evolution of the masterpiece. Chapter-8 contains a discussion on the persistent representation of the *chahar bagh* garden concept in Iranian art, such as through carpets and miniatures. It highlights some of the features which cannot be analysed through the available evidence on the actual landscaped gardens, such as planting and flora, as these have undergone significant alteration beyond

recognition over time. Chapter-9 describes the degeneration of the Chahar Bagh Avenue in the post-Safavid period and into the contemporary times due to shifted political emphasis, neglect and the lack of due consideration in the design and the building of contemporary infrastructure and architecture. The Conclusion (Chapter-10) summarises the rise and fall of the Chahar Bagh by identifying traces of continuity and change within the key components in the creation of gardens. It identifies the knowledge contribution made by this research and indicates areas of future research.

Genesis and Evolution of the Isfahan

2.1- Introduction

2.2- City Genesis (Pre and Early Islam (637-983 CE)

2.3- Seljuk, Malik Shah's Period (1072-1092 CE)

2.4- Making of the City During the Safavid (1598-1629 CE)

2.4.1-Bazaar Route From the Friday Mosque to the Maidan

2.4.2- The Chahar Bagh Street

2.4.3- Zayande Roud River

2.5- Qajar Period (1978-1925)

2.6- Pahlavi Period (1925-1979)

2.7- Contemporary Urban Structure of Isfahan (1979-2012)

2.8-Conclusion

Chapter 2: Genesis and Evolution of the Isfahan

2.1- Introduction

Describing a brief history of the city and analysing the Safavid contribution to the physical aspects of urban planning in Isfahan is fundamental to understanding the important phases in the urban and architectural development of Isfahan leading to the construction of Chahar-Bagh and its gardens in the Safavid period (1598-1629).

The Chapter begins with history of the city phases in the urban and architectural development of the Chahar Bagh in order to highlight the importance of Safavid architecture and urban design in Isfahan and continues by providing additional information regarding the applied changes to the city's urban pattern during the Qajar and Pahlavi periods for future studies. The chapter concludes by stating the applied key factors introduced by Kevin Lynch in "The Image of the City" in the Safavid Isfahan in order to highlight the influence of each factor in making Isfahan a powerful symbol of a complex society during Shah Abbas.

2.2- City Genesis, Pre- and Early Islam (637-983 CE)

As a result of the expansion of Islam from the Arabian Peninsula to its adjacent territories (610-750 CE), Iran was one of the first countries conquered by Muslims. This brought considerable changes in the sphere of politics, as well as in cultural and governance practices, leading to significant changes in the architecture of the city.

The initial core of the current city of Isfahan comprised two small settlements of Jay (this existed before Islam and appears to have been a garrison town of the Sassanid period) and Yahoudie (this was inhabited in part by a Jewish community),[3] located in central Iran (637 CE) (Abouei 2015). A suitable geographical position, such as fertile soil and good weather, were effective factors in the establishment of the mentioned settlements. Jay was a town surrounded by a wall with four gates, where a market square *(bazaar)* was located in the northern part of the town; this square played a crucial role in shaping the Jay area (Amiri 2009: 186-211). Following the arrival of Islam, the first Friday Mosque was also built in Jay. The conquest of the area by the Muslims, in the eighth century CE, led to the relocation of the

[3] All commercial activity was centralised in Yahudie. This state of affairs may have been a consequence of specialisation in trade by the Jewish population, which had profited substantially from the Muslim conquest (Abouei 2015).

government institutions to an area between Jay and Yahoudie known as Khouznian which was eventually connected to the Yahoudie through later developments and constructions. Figure 2 shows the position of the three settlements of Jay, Yahoudie and Khouznian.

Built on a pre-existing Mosque site, the Great Friday Mosque created the first Maidan (known as Maisdan-i Qadim) within the settlement of Yahoudie as a new centre for the town structure. Based on the given information by Jabal Ameli and Khodabakhsh 2006: 48-69, it appears that the Mosque and Maidan were the main areas for public usage in the town functioned as the initial foundations for the birth and emergence of the city of Isfahan.

The second period of the town's development was in the early Islamic period. During this period, Isfahan was the headquarters of the Buyids[4] of Rukn al-Dawla[5] (976–983 CE), who fortified the city with a wall (Walcher 2000: 327-347). Most of the activities in the city took place along the city spine, called the Abrisham (Silk) Road (later re-routed from Iran to Europe during the Safavid[6]), which crossed the settlement centre, surrounded by a residential area. In this period, access to the outside of the town had been provided through four gates and routes intersecting in the centre of the town. Maidan-i-Qadim and the bazaar route had also facilitated access between the internal elements of the main structure of the town (Bastani 2005: 207).

[4] Buyid was a shi'a Muslim dynasty which originated from Lahijan and was founded by Ali ibn Buya who conquered Fars in 943 CE and made Shiraz his capital (Jabal Ameli and Khodabakhsh 2006: 48-69).

[5] Hasan, known as Rukn al-Dawla, was the son of Buya, a Dailamite fisherman from Lahijan, who left his Zoroastrian faith and converted to Islam (Jabal Ameli and Khodabakhsh 2006: 48-69).

[6] "The enduring battles between the Ottomans and the Safavids especially in Shah Abbas reign was to establish a new road leading from Iran to Europe. To find alternative commercial routes, the Portuguese, the Netherlands and then the Britain navies developed maritime trade in the Persian Gulf and the Indian Ocean. Bastani addresses the long disputes between Iran and India about Qandahar based on the key role of this city in commercial affairs" (Bastani 2005: 207).

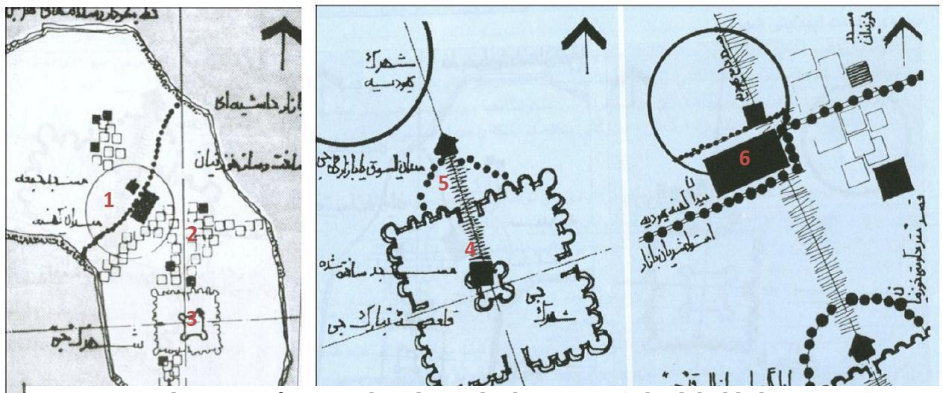


Figure 2: Settlements of Jay, Yahoudie and Khouznian (Khodabakhshi2009:17)

1- Yahudieh
2- Khouznian
3- Jay
4- Friday Mosque
5- Market square, north of Jay
6- Midan-i-Qadim in Yahoudie

2.3- Seljuk, Malik Shah's Period (1072-1092 CE)

Between 1072 and 1092 CE, Malik Shah was crowned Sultan of the Seljuk[7] and moved the capital of the Seljukid Empire from Ray to Isfahan. Based on the statements of Dr A.Jabal Ameli: 2012, during the Seljuk period, like the preceding periods, the River had little direct significance in the formation of the city structure. However, visible changes in the orientation of the city's development from north-west to south were probably due to the influence of the River and its surrounding fertile grounds. The structure of the city in this period consisted of the already existing nuclear pattern (the great Friday Mosque and the old Maidan of Yahoudie) and the new linear pattern in which market-forming cells were built. Most of these cells were introverted without any major open spaces between them. Maidan as the central pattern of the town became the main hub for most of the communications.

Anlysing the maps in Figure 3, access between inside and outside of the town was provided through four main routes starting from four main gates in the city wall and terminating in the Maidan. Furthermore, the bazaar route and the Maidan facilitated access to and connection between other areas within the town through a hierarchical system which connected the secondary passages to the main ones. In addition to

[7] The Seljuq dynasty (Persian: سلجوقیان Saljūqiyān; Turkish: Selçuklular; Turkmen: Selçuklar) was a Turkish Sunni Muslim dynasty that gradually adopted Persian culture and contributed to the Turko-Persian tradition.

facilitating the connection between all other spaces and elements within the city (figure 3B), the Bazaar and the Maidan played a crucial role in creating an essential public urban space for the city. A common feature in all the mentioned periods is the functional characteristics of the city, which were summarised in three main activities of administration and governance; religion, culture and retail, as well as their related services (Danesh-Nama 2009: 16-37). The difference between the Sassanid and the early Islamic town is shown in Figure 4.

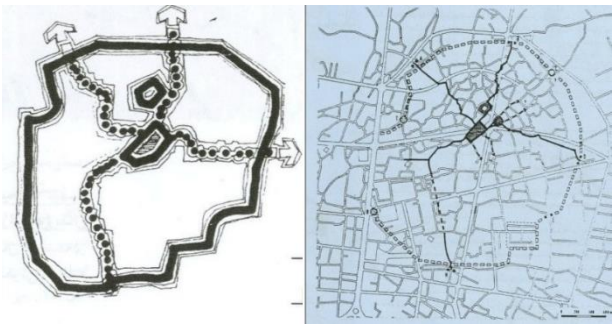


Figure 3: A: City wall and its external accesses from outside, B: Access between urban elements (Khodabakhsh 2009:22)

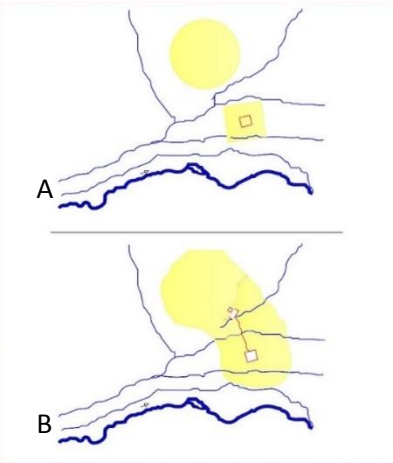


Figure 4: Isfahan's movement Map A; Sassanid Jay of Isfahan for the 6th century, B; Isfahan Sassanid Jay and Jewish Yahudieh for the 11th century (Author 2015)

2.4- Making of The City During the Safavid (1598-1629 CE)

After several periods under successive Islamic governments, the Safavid dynasty in Iran started to promote the Shie'e branch of Islam. The Safavids created a powerful governance system based on specific mystical beliefs and religious viewpoints dissimilar to those of the previous governments (1501-1722). Establishment of a specific structure for the cities' urban expansion and offering a utopia based on

philosophical-religious viewpoints were the main outcomes of the Safavid dynasty. (Khodabakhshi 2006: 48-49). The central location of Isfahan on the Iranian plateau, and the availability of water and fertile land motivated the Shah Abbas to move the capital from Qazvin to Isfahan; this marked the initial point for the development of Isfahan and a big step towards the cultural and political improvement of the city (Shirazi 1974: 586-592).

After the relocation of the capital city from Qazvin to Isfahan by Shah Abbas I, following the recommendation of Sheikh Baha'I, in 1597, Shah Abbas found the city in a ruinous state due to Timur's[8] sacking in 1387 CE (Cantacuzino and Browne 1976: 255-321). Shah Abbas was a clever politician and an energetic administrator. In his town planning and architectural contribution in Isfahan, the Timurid architecture of Herat had a great impact on his viewpoints[9]. Isfahan became a great capital primarily due to the designs of his planner and engineer, Sheikh Baha'I. Shah Abbas also showed an extreme interest in new Mosques and *Madrassah*s (religious school) as symbols of the power of Shi'ism, one of Islam's principal sects, to which most of Iran had been converted under the rule of his grandfather, Shah Ismail (Jackson and Luckhart 1986: 759-842).

Briefly mentioning the urban planning of Shah Abbas and Sheikh Baha'I, which has been already explained, Isfahan was walled and roughly oval in plan. The Seljuk Maidan-i-Qadim was the central nucleus for the city; it was divided into four areas with axial bazaar routes. The Maidan-i-Qadim stretched between the two surviving monuments of the Friday Mosque and the Minaret of 'Ali to the north-east/south-west direction *(ibid).* Access to the outside of the town was provided through four main routes starting from the four main gateways through the city wall (Jabal Ameli 2012).

'Maidan-i-Qadim' was a model for the new Safavid 'Maidane-i-Shah', to which all the functions of old Maidan were transferred. However, the new Maidan introduced a unique and planned design. The bazaars were modified and extended from the Friday Mosque to and around the new Maidan. The bazaars around the new Maidan were built in two stages; the ground-floor shops were built first, followed later by the

[8] The Turco –Mongol founder of Timur Dynasty in Iran

[9] The reason for such influence is explained in Chapter 8. Briefly, Shah Abbas was born in Herat (1571), whose urban pattern had been shaped mostly during the Timurid epoch, and he lived there until reaching the throne; therefore, he was completely familiar with the idiom of Herat's plan (Haghighatbin et al 2012: 81-83).

second floors. The primary commercial, religious, and governmental activities of the city were all placed in new Maidan. All the Seljuk Gardens situated in the west area of new Maidan became the palace grounds, and the vineyards further west and outside the walls became the ceremonial Avenue, named Chahar Bagh (Four Gardens). Covered by pavilions and gardens on both sides, it belonged to the royal family. The circular palace of Jahan Nama as the entrance gate for the boulevard closed Chahar Bagh at its northern end and southern direction of this street extended over the Allahverdi Khan (also known as *siose pol* - means Thirty-Three Bridge) Bridge to the royal gardens of Hizar Jarib (Cantacuzino and Browne 1976: 255-321). A city may possess many valuable individual buildings. However, the crucial factor in making a city successful in terms of architecture and urban planning is providing an easy and meaningful connection between buildings and spaces, features which were introduced to the urban design of Isfahan by Shah Abbas. The following image (Figure 5) indicates the essential elements of Shah Abbas's project including the two north-south axes of the straight Chahar Bagh crossed by the east-west axis of the River and the indirect bazaar routes (*ibid*).

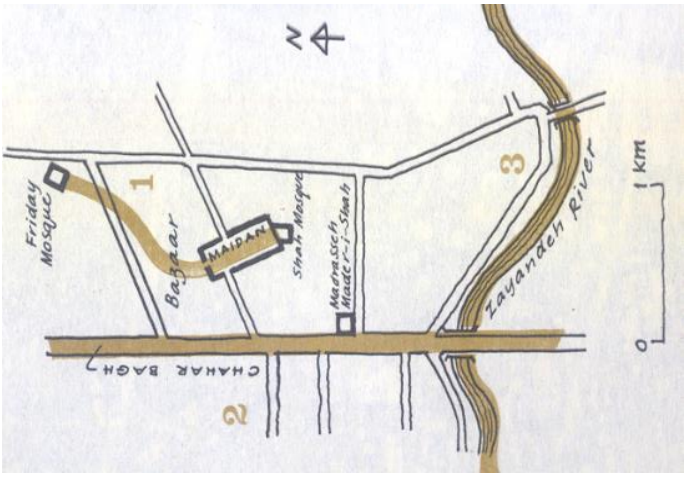


Figure 5: Three important features in the development of the Safavid city of Isfahan (Cantacuzino and Browne 1976: 261)

Much of Isfahan's beauty has already been ruined, and solutions are needed to preserve the remaining features of the city. In order to understand the task in hand, one successful example of urban continuity is examined in the following section. This demonstration of town design is the Bazaar route that starts from the Friday Mosque and ends in the great square of Shah Abbas.

2.4.1- Bazaar Route From the Friday Mosque to The Maidan

Extending the length of over a kilometer, the Bazaar was one of the great spatial sequences of the ancient world, flanked by small and regular independent shops. One step away from the noisy line of the Bazaar, the Mosque with its courts open to the sky facilitates a haven of tranquility. Either side of the bazaar route is the secondary set of pathways, leading to house clusters built out of mud brick walls between narrow streets. All the houses are set around their own courtyard and create a private inward-looking world, protected from the heat and noise of the city outside (Jackson and Luckhart 1986: 759-842.).

The Bazaar, which extended from the Friday Mosque to the new Maidan has been has been described by Kenneth Browne as the First lifeline for the city of Isfahan in which commercial (shops), religious (Mosques) and cultural (*Madrassahs)* functions underpinned the service performance of this axis (Figure 6) (Jabal Ameli 2012.). A strong linkage between the religious and commercial life of the city was offered by the Mosque and madrassas along the bazaar route. For modern designers, the space and material employed along the bazaar route as well as the fact that every single design has a purpose and nothing is wasted are the main points of interest in the architecture of the Isfahan's traditional Bazaar; however, the Avenue of Abdolrazzaq as a fast-moving traffic street has recently been jeopardised the continuity once presented by the bazaar route (Cantacuzino and Browne 1976: 255-321).

Maidan as the terminal point of the bazaar route, with the proportion of one to three (165 metres wide and 510 metres long), was an impressive rectangular space which brought rhythm and simplicity to the architecture of the Maidan. It was a place for ceremonies and tournaments such as the polo match as well as an economic location for the new layout of Shah Abbas's plan for Isfahan. The bazaar route continued around the Maidan and was completed in two phases. The first phase constituted the construction of shops around the Maidan, and the second phase was building the half-modules of the bazaar pattern on top of the completed modules of the first phase (Figure 7) (Jabal Ameli 2012).

Figure 6: Left: The bazaar route from the Friday Mosque, adjacent to the boundary of old Maidan (highlighted in red circle) to the new Maidan (Cantacuzino and Browne 1976: 260), right: the recent picture of the area (google earth 2016)

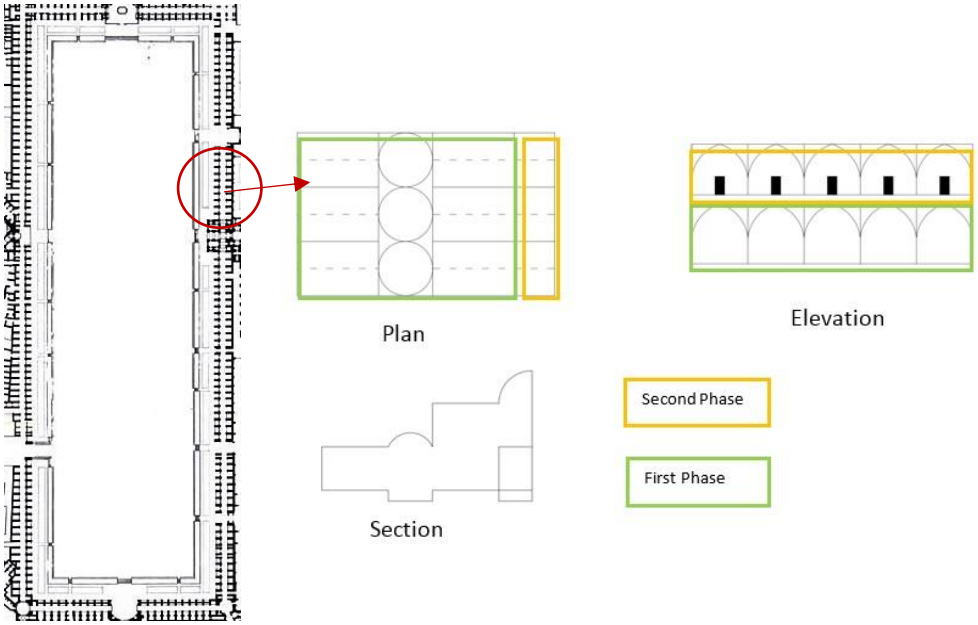


Figure 7: Plan, Elevation and section of the Maidan surrounding the Bazaar (Author 2012)

The main entrance for the Maidan was from the northern side (Qaysariya gateway) and the perspective of Maidan is such that all of its components are framed in a single view. In designing the new Maidan, Shah Abbas chose a 45-degree swing in the orientation of Maidan from the axis of Shah Mosque to save the connection of the new Bazaar of Qaysariya and the old bazaar route (Cantacuzino and Browne 1976: 255-321). Figure 8 shows the components of the new Maidan; the Qaysariya gateway to the North, Shah Mosque to the south, Ali Qapu (the ceremonial gateway to the royal palace of Safavid shahs and a grandstand from which to view the activities in the square below) to the west, and the madrassas and Mosque of Sheikh Lotfullah to the east.

The new Maidan repeated some features of the old Maidan including spatial distribution. However, the main difference lies in the way they were constructed. Maidan-i-Qadim had formed organically, while the formation of the new Maidan was based on a predetermined master plan. Although the old Maidan never lost its importance after the construction of the new one, the nature of the activities that had taken place in the old Maidan changed after the transfer of political power to the new one (Shirazi 1974: 586-592). Notably, regulating the urban expansion in the city of Isfahan was the main aim of Shah Abbas in designing the new Maidan.

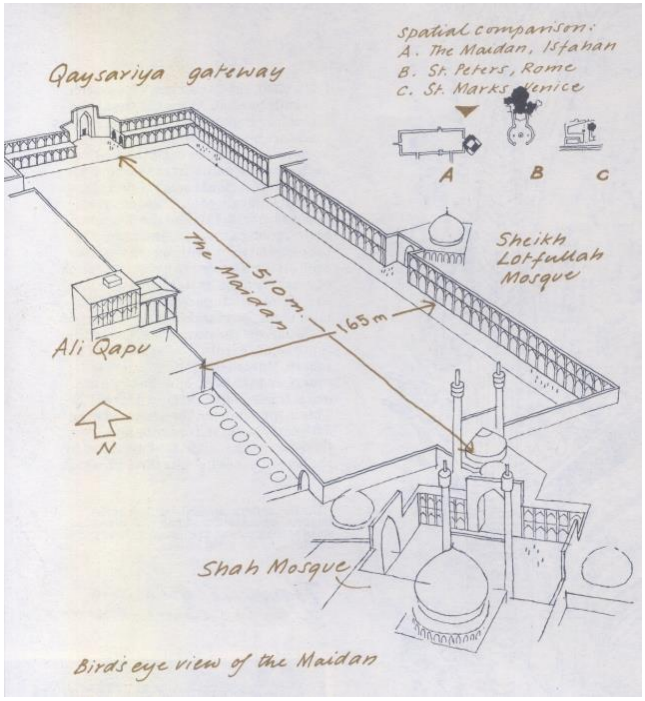


Figure 8: The perspective of Maidan including its components (Cantacazino and Browne 1976: 274)

2.4.2- The Chahar Bagh Street

As explained above, the main axis for the development of Isfahan started from the circular palace of Jahan Nama in the north to the Royal Gardens of Hizar Jarib in the south, named the 'second lifeline' by Kenneth Browne in the shaping of the Safavid city of Isfahan.

The Chahar Bagh Street created four regions in Isfahan. The southern part of the River was divided into two communities-Zoroastrian and Christian[10] communities. The Zayande Roud River separated the Muslim majority in the north from the non-Muslim majority in the south (Shirazi 1974: 586-592).

The northeast area of the four areas in which the primary city of Isfahan was formed (inside the wall of Ale Bouye) underwent an organic expansion. To the northwest area, a district was shaped, known as Abbas Abad. It provided a place for those who immigrated from Tabriz, Azerbaijan, Ardabil, Qazvin, and Zanjan (Jabal Ameli 2012). Besides Chahar Bagh as the north-south axis, the natural east-west axis of the Zayande Roud played a crucial role in the city's development and urban design as explained in the next section.

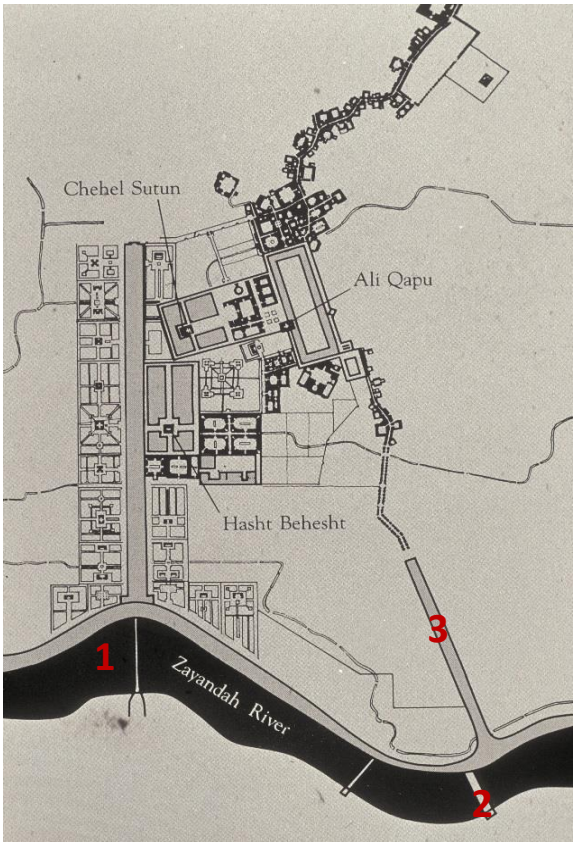
2.4.3- Zayande Roud River

Zayande Roud, as an essential city spine in expansion of Isfahan, plays the third 'life line' for the city. Its fundamental role as a rare source of water in an arid country made people respect and treasure it. The two great bridges of Allahverdi Khan (built soon after 1600) known as *Sio-se pol* and Khaju (built between 1642 and 1666), which were constructed during the Safavid period over the River, gave an integrity to the city by connecting the north area of the River (Royal complex) to the south. Functionally, the main purpose for the construction of the Khaju Bridge was to make a connection between the south area of the Zayande Roud and the north; however, during the Qajar dynasty, it provided access from the south to the later Khaju Char bagh [11] and the main Isfahan's bazaar route. Furthermore, it functioned as a dam which protected the city from flood during the rainy seasons. Architecturally, Khaju

[10] Transferring thousands of Armenian and Jewish to Isfahan has been referred to as part of Shah Abba's policy in the expansion of the capital city. This is discussed in detail within the following chapter, parts 3-4 - The importance of Safavid political viewpoints in the creation of Isfahan's unique urban pattern.

[11] Chahar Bagh *Khaju* is also known as Chahar Bagh-i-Sadr, built in Isfahan during the empire of Aqa Mohammad Khan, Qajar.

Bridge, with sluice gates in narrow channels between the stone steps and covered side galleries, resembles a palace more than a bridge. A linkage between the city and the Royal Gardens of Hizar Jarib was made possible through the Allahverdi Khan Bridge. Both bridges were flanked by roofed galleries, which made their structures almost impregnable in times of siege. Figure 9 illustrates the two important bridges of Khaju and Allahverdi Khan drawn by Ardalan.



1- Allahverdi Khan Bridge
2- Khaju Bridge
3- Khaju (Chahar Bagh-i-Sadr) Chahar Bag

Figure 9: The plan of Isfahan including Khaju and Allahverdi Khan bridges (Cantacuzino and Brawne 1976:259)

Figures 10 and 11, depicting works of Coste (1839-1841) also show, respectively, the Khaju and Allahverdi *Khan* bridges. The oldest bridge of all is Shahrestan Bridge, which lies some three kilometres east of the city. The probable given date for the construction of this bridge is AD 260, possibly designed by Roman engineers (Cantacuzino and Browne 1976: 255-321.).

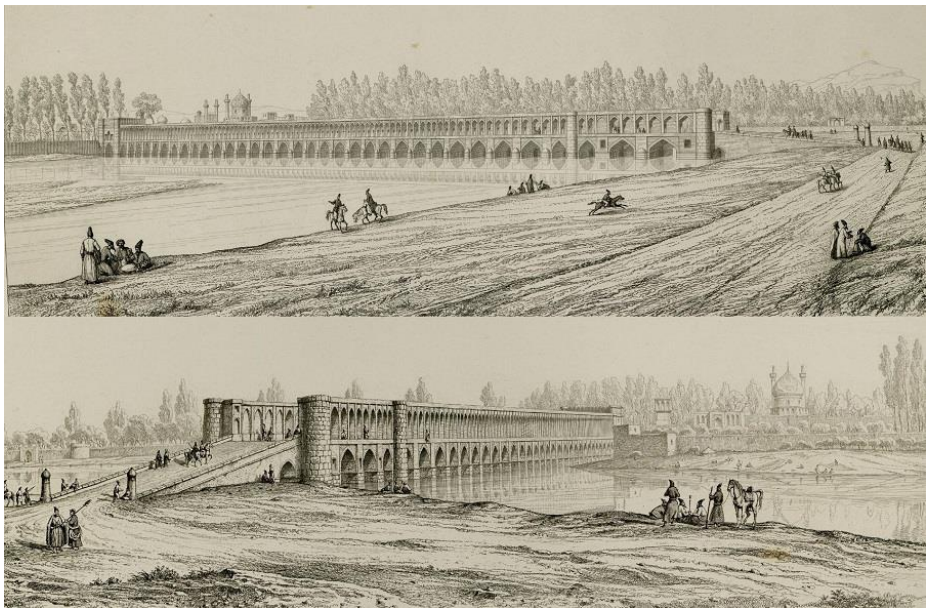


Figure 10: Allahverdi Khan Bridge by Coste 1840 (Coste 1867: 71)

Figure 11: Khaju Bridge over the life giving river of Zayande Roud by Cost (Coate 1851: 53)

In addition to the Zayande Roud, mountain water carried in channels, or '*Jubes*' (narrow streams) lined with trees, fed the city, and the water and shade created cool air even on the hottest of summer days. Sheikh Baha'i, poet, philosopher and engineer, introduced the scheme of irrigation to the Shah-Abbas, for an agricultural base to ensure the survival of the new city of Isfahan. Following the expansion of the city of Isfahan to the south, the new urban fabric was established along the Zayande Roud River. In addition to shifting the main structure of the city to its own side, the

River became an important part of the city's main axis as it provided a strong connection between the Chahar Bagh and other districts beyond the River as well as a new axis for the city's development (Hizar Jarib). Regarding the structure of the city, the Bazaar, Maidan, Chahar Bagh and the River are the city's key areas while in the master plan of Isfahan the natural east-west axis (the Zayande Roud River), and the artificial north-south axis (Chahar Bagh) are two orthogonal axes of expansion in Isfahan (Cantacuzino and Browne 1976: 255-321).

2.5- Qajar Period (1878-1925)

After the end of the Safavid Empire, Aqa Mohammad Khan, the founder of the Qajar dynasty chose Tehran as the capital city in 1785, thus the political importance and urban status of Isfahan inevitably faded; however, its epithet, Nisf-i-Jahan (means half of the world) survived (Walcher 2000: 327-347).

While Aqa Mohammad Khan in Tehran announced his government, one of his ministers in Isfahan called Sadr built the street of Chahar Bagh-i-Sadr. His concept was to create a connection between the south-west districts of the city to the Chahar Bagh through Khaju Bridge. After Aqa Mohammad Khan, his nephew, Fath Ali Shah, came to the throne. Construction of a Mosque, known as "Seyyed Mosque," the greatest Qajar architectural project was undertaken in Isfahan during the rule of Fath Ali Shah (1797-1834) (Jabal Ameli 2012).

The most prominent theme during the Qajar period was the tension between traditionalism and modernism in social, political, and architectural terms. Isfahan had to be recreated by synthesising the historical and the contemporary or modern in political and architectural terms. The essential factor in the discussion of the nineteenth century is that Isfahan was no longer the capital and its architectural buildings built during the Safavid were no longer in use, having lost their purpose. Architecture in this period was created in a socio-political context in which the scope of new construction, function, style and form was being redefined. There are significant differences between early and late nineteenth-century architectural constructions, of which early Qajar Isfahan was more famous for its urban importance (Abrahamian 1974: 3-31).

2.6- Pahlavi Period (1925-1979)

Considering the expansion of Isfahan during the Pahlavi Period, particularly around the south bank of the Zayande Roud River, Chahar Bagh still played the main role for the city's development from the south to the Sofe Mountain. Most of the constructions in the city during the Pahlavi period were related to the construction of new road networks and public buildings with various functions such as different offices, treatment centres, training centres, and - significantly - commercial and recreational centres. Most of these centres were positioned around the main border of Chahar Bagh Street as the main north-south roadway axis. On the other hand, Zayande Roud as the east-west axis accommodated many commercial and recreational activities along its edges, such as parks, hotels and passages, which were new structures added to the traditional Safavid plan of the city. The construction of the University at the terminal point of the Chahar Bagh Street along with the revival of the Abbasi Hotel built during the Sultan Husayn, the Safavid King (1694–1722) and Chahar Bagh Madrassah in the place of the previous Caravanserai of the Shah Abbas were essential in fortifying this axis. The establishment of a new network of routes eliminated the importance of the previous elements within the city skeleton such as Maidan-i-Qadim at the top end of the north-west and its north-side bazaar. However, in the region of Chahar Bagh and Zayande Roud, these routes emphasised the function and the roles of the Khaju and Allahverdi Khan *(siose pol)* bridges (Jabal Ameli and Khodabakhsh 2006: 48-69).

A new form of urban structure developed during the Pahlavi. Highlighting the strength of the Safavid architecture, Figure 12 indicates the Chahar Bagh Avenue, the new Maidan and the spine of the Zayande Roud River, all of which preserved their importance during the Pahlavi and collectively played the main role for the urban structure of Isfahan as they had done during the Safavid epoch. However, some older elements such as the Midan-i Qadim, which was the very initial core of the structure of the Seljuk town, dissolved in the new pattern and lost its importance.

Decades of the Pahlavi regime imposed many developments on and within the urban fabric of Isfahan. Among these examples, we can point to the formation of a massive green public space along either side of the Zayande Roud River which became the largest urban open space of the city after the Safavid Chahar Bagh. Another example of the Pahlavid urban changes in Isfahan was a reduction of the compaction and

density of construction around the Hasht Bihesht garden as well as an expansion of the bazaar route to its adjacent residential areas within the context of the Bazaar. Furthermore, construction of new bridges beside the old bridges of Khaju and Allahverdi khan allowed rapid traffic flows on both sides of the River. It also provided a crucial connection between old features of the city on the north side of the River and new features to the south of it.

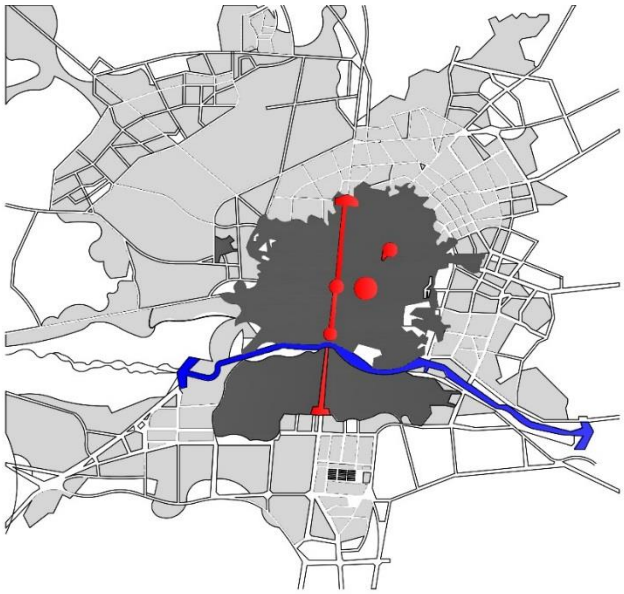


Figure 12: The structure of Isfahan in the Pahlavi based on development of Safavid city along the Chahar Bagh axis after Khodabakhsh 2008: 110 (Author 2013)

2.7- Contemporary Urban Structure of Isfahan (post-revolutionary period)

From the Pahlavi times onward, rapid modernisation within the Iranian urban structures led to the construction of new avenues through the old parts of the cities. The outcome was deconstruction of traditional parts following the accelerated urban expansion regardless of the heritage value of the old structures. Before the advent of modern master planning in Iran, the role of road buildings was based on a specific agenda; however, there were no predetermined plans attached to this. The master plans became essential for Isfahan due to the rapid population growth of the time. Iran was introduced to the achievements of western planning methodologies during the 1950s and 1960s. Based on the rule of the country's Third Development Plan of 1962-68, Iranian consultants were associated with American or European partners to

adopt the standards of foreign cities. The new master plans were concentrated according to three main factors - the road network, the land use, and the building density and heights (Khodabakhsh 2008: 102-113).

Following the programme of road-building in Isfahan, a French architect and planner known as E.E. Beaudouin produced a master plan for Isfahan in which a rectangular grid of roads was imposed on the old grid without room for cars. The lack of regard for the historical evolution of Isfahan in this plan, which made it an inconceivable concept for those who were familiar with Isfahan, was another weakness for the new master plan (Figure 13).

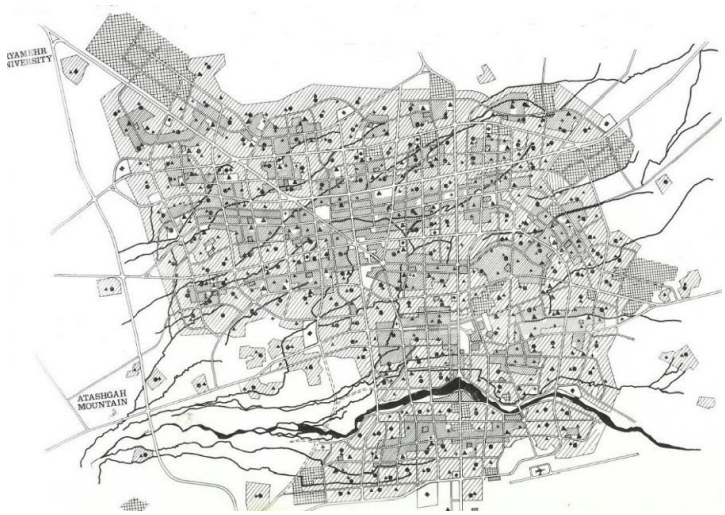


Figure 13: Master plan of Isfahan produced by E.E. Beaudouin (Karimi and Motamed 2003:9)

The only recognisable feature from the Safavid epoch in the new plan was the Chahar Bagh Avenue, standing as strong as other avenues in the grid. Although the master plan of Beaudouin dating back to 1968 was not fully implemented and only some of the major streets were built, enough harm was created to the structure of the city and its integrity. The story of master planning in Isfahan continues to the present day. Naghshe-Jahan-Pars Consultants have prepared a more realistic master plan for the city that sensitively addresses different issues.

2.8- Conclusion

Having considered the city development during early Islam, Seljuk, Safavid and Pahlavid, it could be concluded that the Safavid was the era in which the city and image of Isfahan was shaped. Examining the definition of urban space by Lynch, I

began an analysis of the Safavid urban pattern according to the key factors in which Lynch views were represented. Kevin Lynch believed that an urban system should be legible and that its image has to be perceived by observers. This legibility and imageability would then lead to the identification of a structure and an actual identity by which analysis of an urban pattern would be possible (Zamburlini 2010).

Lynch (1960) introduced five key factors that contributed to making an urban pattern legible and imaginable. The first factor is 'path' by which movement can easily take place within the different parts of the city. Simply, a path is a road or a visual corridor including streets, sidewalks, trails and other channels along which people travel. Figure 14A highlights the spatial axes of the Chahar Bagh as the main path and the secondary paths, which created access among other parts of the city. Paths were the basic element for identifying Isfahan as a city during the Safavid time. The image also explains the importance of the Chahar Bagh as both a critical urban component and the dominant factor of the city. It indicates how structure as well as the initial framework offered a unique pattern for the later urban expansions.

The Second factor in Lynch's concept is 'edge' by which the boundary of an area could be determined. Image 14B illustrates how the edges around the Chahar Bagh close this region off from its adjacent areas. The edge could be a green belt, waterfront or street wall. In the case of the Chahar Bagh, the green area along the boulevard as well as the grill wall (described by Chardin and explained in more detail within the following chapter) represent the concept of the edge in the new urban pattern of the Safavid. The third classified factor from Lynch's viewpoint is the 'node', a focal point and intersection for the city such as an enclosed square, which usually is the centre of a district. Figure 14C highlights both Maidan-i Qadim and Maidan-i Shah as the representatives of node in the city image of Isfahan. Both Maidans were the cores for the city development, and provided daily activities related to people's daily lives including religious, economic and cultural activities. According to Lynch, city cores are often the crucial nodes for the city.

The fourth factor is 'landmark', a type of reference point with the function of helping people to orientate or distinguish their way in the environment. Simple physical elements, which are various in scale, such as building, sign, store, or mountain, can also be classified as landmarks. Figure 14D displays both old and new Maidan as well as Mosques' domes as the representatives of landmarks of the Safavid city. Based on Lynch, open spaces can be categorised as both paths and nodes; however,

in the case of Safavid Isfahan, Maidan-i Qadim and Maidan-i Shah can be considered as landmarks or even districts depending on the way in which the respondent represented it, used it and interpreted it. The scale and structure of both Maidans separated them from the adjacent areas and this could be easily recognised from a particular location. In this way, they can be considered as the landmarks of the Safavid urban design.

The last factor introduced by Lynch is district, which is a large section of a city defined by some identity or characteristics. To be considered such, a district should clearly explain its individual function. Figure 15 shows different neighborhoods of the Safavid times, which comprised around 85 regions, based on different religions, societies and businesses. Each district was distinct from the others while combined they created an integrity for the whole city. After the rise of the Safavid in Isfahan, the primary kings of this dynasty proceeded with the reconstruction and development of the old town centre by generating some urban elements around the Maidan-i-Qadim such as caravansary, Mosque, and madrassas. Following the Shah Abbas' decision, the court was transferred from Maidan-i-Qadim to the new Maidan (Naghshe Jahan), and facilitated four important services - administrative, religious, scientific, and economic

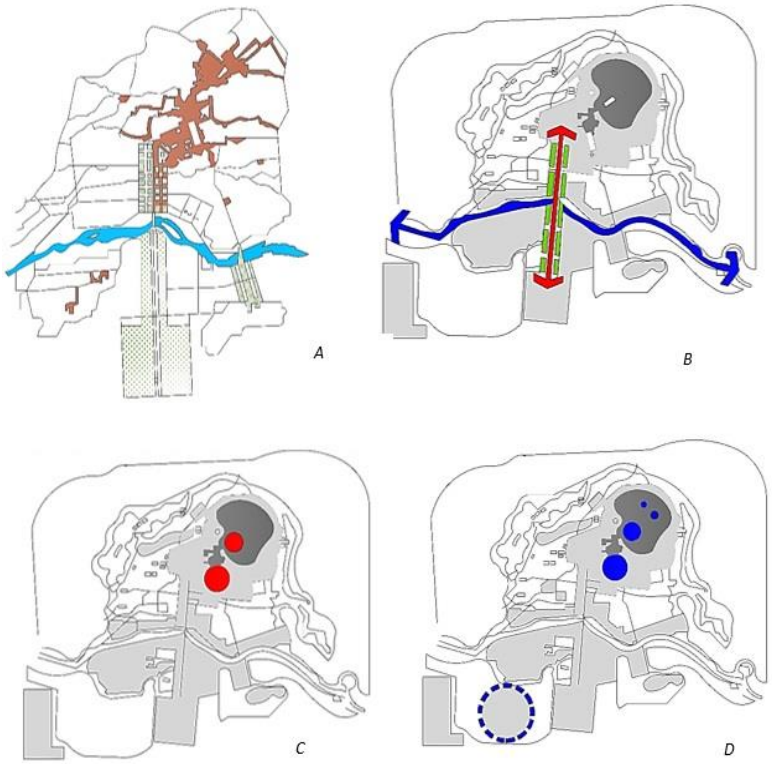


Figure 14: Lynch's factors in the image of the Safavid Isfahan A: Edges, B: Path, C: Node, D: Landmark, after Khodabakhsh 2008: 108 (Author 2013)

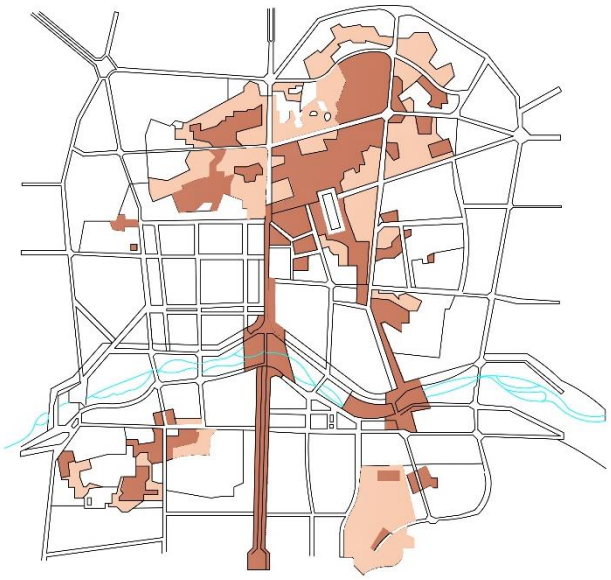


Figure 15: Districts in Isfahan during the Safavid period after Khodabakhsh 2008: 108 (Author 2013)

Within Shah Abbas's scheme, what was formed within the Maidan-i-Qadim during several centuries, occurred in a relatively short period in the new Maidan based on a predetermined spatial organisation. Although the features and elements of new Maidan are similar to Maidan-i-Qadim, the positions of their locations are different. The connection between new Maidan and the south part of the River had been provided through the Chahar Bagh Boulevard, via Khaju Bridge (Golombek 1974: 18-44).

Based on the given information regarding the urban structure of Isfahan before the Safavid plan, the city had a mixture of main nuclei with a linear pattern. Interestingly the new scheme for Isfahan imitated its previous pattern. Accordingly, the city possesses two main cores and two main axes following the same direction. The locations of two important nodes, one at the start point of the new axis and the other at the connection point between the new and old axes, were two main activity poles, which accommodated future developments of the city in the figure below, (Figure 16).

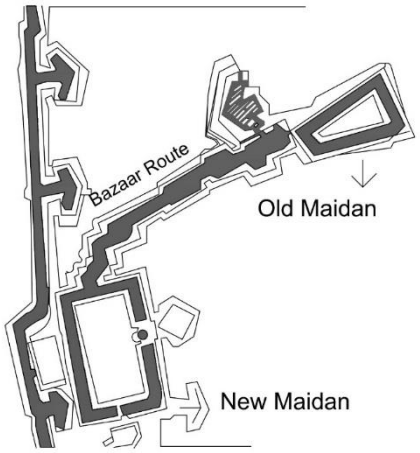


Figure 16: New Maidan and Maidan-i-Qadim and bazaar as their linking agent (Author 2013)

Although the new structure, including a group of elements around an open geometric space, followed the traditional urban pattern, the main difference was the location of elements within the new Maidan, constructed on longitudinal and transverse axes. The bipolar situation of the city centre was the initial reason for the integration of the predetermined plan for the city centre of the Safavid and the previous organic old centre plan. Figure 17 shows how the city's long bazaar route acted as a connecting bridge between the old and new centres while preserving its dynamism due to the role it played between these two hubs.

The noteworthy aspect in this regard is the appearance of a wide range of recreational elements around the edges of Chahar Bagh Street.

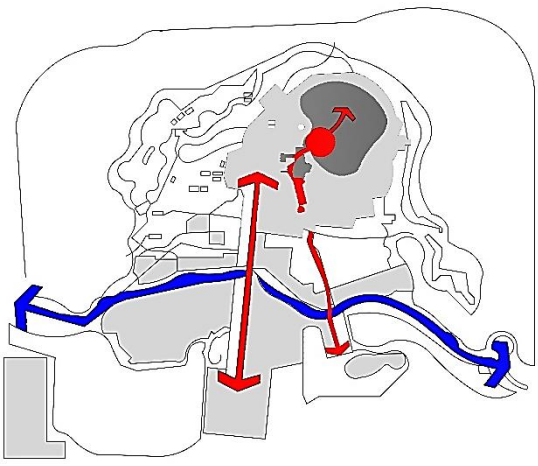


Figure 17: Isfahan: city structure during the Safavid period based on two main axes of Chahar Bagh (north-south) and Zayande Roud Riverer (east-west) after Khodabakhsh 2008: 107 (Author 2013)

In the Pahlavi era and following the creation of streets after the introduction of the car, the old part of the city lost its importance and the skeleton of the city was affected by rapid constructions. In the current era, from 1975 to the current time, the urban expansion in Isfahan occurred in all directions because of increasing rural migration to cities; as a result, the pattern of the city was reshaped[12].

Talking about the city's genesis, I have highlighted the importance of Safavid Empire in the making of the city with the introduction of the Chahar Bagh Avenue as the model design of the Perso-Islamic garden within which plantation, order and elements played a crucial role in reforming and changing the whole urban pattern of the area. The functions and architectural features of this boulevard are discussed in detail in the following chapter.

[12] More in-depth study regarding the Safavid Empire is available in the appendix. 1.

Imposition of a new Urban Geometry

3.1-Introduction

3.2- Isfahan, A Garden City

3.3- Isfahan's Urban Development During Shah Abbas

3.4- Chahar Bagh Avenue and its Gardens

3.4.1- Hizar Jarib Garden

3.4.2- Hasht Behisht Garden, Madrassah and Mosque of Madar-i shah

3.5- The Importance of Safavid Political Viewpoints in The Creation of Isfahan's Unique Urban Pattern

3.5-Conclusion

Chapter 3: Imposition of a New Urban Geometry

3.1- Introduction

This chapter deals in particular with the physical aspects of the Chahar Bagh, highlighting its role as the main green public space created during the re-formation of Isfahan by Shah Abbas (1598-1629). Summarising the evolution of the Safavid urban proposal in Isfahan there were three crucial elements in the Safavid concept of urban planning in Isfahan: Chahar Bagh, Zayande Roud and Maidan-i-shah which could be considered as Safavid landmarks for Isfahan according to Lynch. As it has been highlighted within the previous chapter, lynch described the landmark as a type of reference point with the function of helping people to orientate or distinguish their way in the environment. Simple physical elements, which are various in scale, such as building, sign, store, or mountain (Lynch 1960). These three landmarks played an important role in creating a framework for the subsequent construction of Isfahan. While the Chahar Bagh and Zayande Roud offered a crucial urban order for the whole area, the Maidan to the east did the same job but on a smaller scale with a different pattern. Chahar Bagh was not directly connected to the Maidan-i-Shah; rather, it was located about 600 yards to the west, and the space between the Avenue and the Maidan was previously occupied by gardens and the royal complex. Chahar Bagh was not only a boulevard or an axis for the urban pattern of Isfahan, but also an extensive garden which represented Isfahan as a garden city in the middle of the desert.

3.2- Isfahan, A Garden City

The garden city of Isfahan is one of the most complete experiences of early urban design of the last 400 years. The structure of the city had been shaped based on two key features: The Chahar Bagh Avenue and the Zayande Roud River (Shahcheraghi 2010: 46-60). Detailed descriptions of pre-Safavid towns in accounts by different travellers make no reference to green areas along the roads. Although an irrigation system carried water to all parts of the town originating from the river, there are no reports of trees and flowers growing at the sides of the roads, and most of the green areas that were mentioned were in private houses within courtyards shut away from public view (Cantacuzino and Beowne 1976: 255-321). At the architectural end of

the scale courtyard gardens and green spaces were mostly hidden behind high, solid walls (Shahcheraghi 2012: 46-60). According to Wilber, against the precedents of the imperial palaces of its previous dynasties in which walls protected the enclosed garden from the public exterior, the construction of the Chahar Bagh by Shah Abbas was a controversial act (Savory 2007: 151-174). Gardens and pavilions lined both sides of the Avenue; Figure 18 shows grilled walls that allowed pedestrians to enjoy the view of these gardens from the pathways.

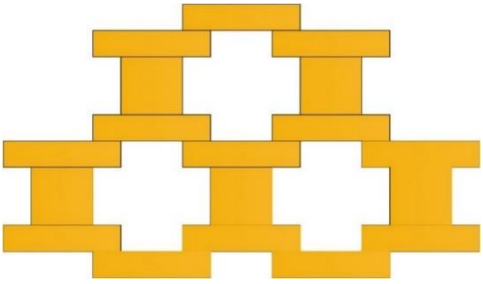


Figure 18: Grilled wall of Chahar Bagh by Shah Abbas, based on Chardin's descriptions (Author 2015)

For the first time in the sixteenth century a planned green area was joined to the Zayande Roud River and its natural beauty. The logic of Shah Abbas for the creation of such a development originated from the political and cultural situation of the city. Reasons for such fundamental change in town structure were the fruits of peace, prosperity, and national security provided for the city by Shah Abbas during the Safavid Empire that nullified the need for the reconstruction of the Buyid protective city wall or indeed any solid wall in designing the new urban pattern of Isfahan.

After moving the capital to Isfahan from Qazvin, Shah Abbas proposed a new centre for his empire and intensified it by setting up the glorious Chahar Bagh. Although the river and its surrounding lands were major factors in the creation of such a masterpiece, the Chahar Bagh became the principal route for the city's movements in the sixteenth century. It extended beyond the river to the skirts of the Sofe Mountain, at the extreme south of the city (Jackson and Luckhart 1986: 759-842). The town did not experience significant changes between the twelfth and sixteenth centuries since it was not a capital city. Furthermore, architecture was of less importance to the Shah compared to poetry, painting, calligraphy and music. I believe that the political turmoil of the previous reigns resulted in little that was produced before the late fifteenth to early sixteenth centuries. No innovation disturbed the architecture of the time except for some small-scale decorative aspects.

3.3- Isfahan's Urban Development During Shah Abbas

There are various viewpoints regarding the sequence of Chahar Bagh's development. Andre Godard, the first modern European attempting to establish motives and visions behind Shah Abbas's building projects, concluded that there were two separate building programmes for Shah Abbas's constructions in Isfahan (McChesney 1988: 103-105). The first programme began in 1598 and concerned ideas for the designation of Isfahan as an imperial city, including the palace complex, the Maidan area, and the royal pleasance. The second programme, for Godard, consisted of projects such as the Royal Mosque to celebrate the grandeur of the Safavid state under Shah Abbas. The first stage started with the selection of Isfahan as the capital city and ended with victories over the Ottomans. The second period, which extended from 1611 to 1629, coincided with the period of peace following the mentioned victories. Although there is evidence of economic and social reasons behind the creation of this masterpiece of the Safavid, it seems that Godard mostly relied on studying the political history of the Safavid in arriving at his categorisation (McChesney 1988: 103-105). Considering the various sequences of development for the large-scale urban design project of Safavid Isfahan mentioned in different sources, Godard shows some confusion about the characteristics and dates of developments when he said, "la chahar bagh, a la vérité, fut concu plutôt à la façon d'un jardin que d'aveue, dont la circulation de l'epoque n'avait pas besion." Translated, "Chahar bagh has been designed rather as a garden than an avenue as the vehicle transportation of the era didn't required any avenue construction" (translated by author 2015). Some of the misunderstanding within Godard's reports is due to his reliance on the perceptions of Iskandar Beg[13] and Pietro Della Valle. Comparing the descriptions of Iskandar Beg and Jalal-I Munajjim's[14], it can be concluded that the development of Chahar Bagh happened as follows:

[13] The best known of sources from which information on Isfahan has been excerpted and translated are four from McChesney view point (refer to McChesney: 1988 103-105). The third resource in terms of the date of completion is the reports of Iskandar beg Munshi. He was one of the Safavid historians, which finished his work on the first section of his famous historical writing, *Tārīkh-i ʿĀlam-ārā-yi ʿAbbāsī.*

[14] Jalal-I Munajjim was the astrologer of Shah Abbas, the first who started his work on writing the biography of Shah Abbas, the first, from his birth up to 1611. His work provides a wealth of detail not found elsewhere. For many years he was very close to the court's life and wrote about those days with refreshing clarity compared to the more formal styles of Iskandar Beg (McChesney 1988: 123-125).

At the first stage, *Bagh-i Hizar Jarib* was designed in 1596. A canal sub-divided into a number of channels was dug from Zayande Roud in 1597-98 to irrigate the whole area of the garden, which again converged to a canal bisecting what would be the Chahar Bagh Boulevard. In 1602 the Allah Verdi Khan bridge was completed and McChesney assumes that both the upper and lower parts of the bridge were under development during these five years (i.e. between 1596 to 1602) and the development continued until 1611, when the work on the Tabrizi quarter (Abbas Abad) to the north west of Zayande Roud River was started (McChesney 1988: 123-125). In most of the writings, Dawlatkhaneh has been indicated as the starting point and Abbas Abad garden as the end of the great boulevard of Chahar Bagh. However, the dates cited by Iskandar Beg Munshi offers a different story of the development of Chahar Bagh which started from the gardens of Hizar Jarib in the southern end and moved in towards the city.

Since Jalal-I Munajjim who described the *Bagh-I Hizar Jarib*, Allah Verdi Khan bridge and the Zayande Roud Rive provided almost no description related to the development of Chahar Bagh, it can be assumed that most of the development in this area occurred after he had finished his book in 1611 and before Hasan Junabadi wrote the section of his work *(*Rawzat al- Safaviyya) in 1619 (McChesney 1988: 125). Information provided by Junabadi regarding the construction of Maidan-i shah, the Chahar Bagh Boulevard and the royal pleasance is extremely close to the writings of Iskandar Beg. Notably, it contains a wealth of detail not found elsewhere. According to Junabadi, the garden avenue of Isfahan was 50 canonical cubits[15] in width, intersected by the natural axis of the Zayande Roud river into two parts - the upper (*bala*) and the lower (*pa-in*) - and the Allah Verdi Khan bridge linked these two parts to each other. The aristocracy of Isfahan built private gardens along the avenue (*Khiaban*) following certain standards. Some examples of the cited standards can be found at the entrance to each estate known as *Dargah*, which consisted of a two-storey gate. Cisterns were built on the main pathway opposite to each entrance (Figure 19). MacChesney (1988: 125) wrote in the *Four Elements on the Building of*

[15] "a historic unit of distance frequently mentioned in the Bible. The word comes from the Latin cubitum, "elbow," because the unit represents the length of a man's forearm from his elbow to the tip of his outstretched middle finger. This distance tends to be about 18 inches or roughly 45 centimeters. From http://mathforum.org/library/drmath/view/58488.html 2002).

*Isfahan: "*Although the styles of the elements were varied, the master plan adhered to develop an aesthetic unity for the area*."*

Various forms of large cisterns were built in front of each entrance on the avenue. There were seven pools - four were big and the rest were small. Honarfar quoted from Chardin:

> The first pool is square shaped with the perimeter of 15 feet (in front of *Jahan Nama* Palace), second one is also square shaped constructed in 120 feet (between the gardens of donkey and octagon), including a central octagonal platform supported by fence around it [Figure 20 – *author's insertion*]. This area uses as a seating area for almost 10 people, providing them cool air to enjoy their surrounding environment. The third pool is octagonal with the total perimeter of 108 feet surrounded between gardens of the Nightingales and Throne. The fourth pool has the perimeter of 20 feet. Fifth (between the gardens of Vineyard and Mulberry), sixth (between the gardens of Nemattollahi and Heidari) and seventh (between the gardens of Lion and Aviary) pool are square shape respectively occupied 12, 108 and 124 feet area" [Figure 21 – *author's insertion*[(Golipour 2014: 35-36).

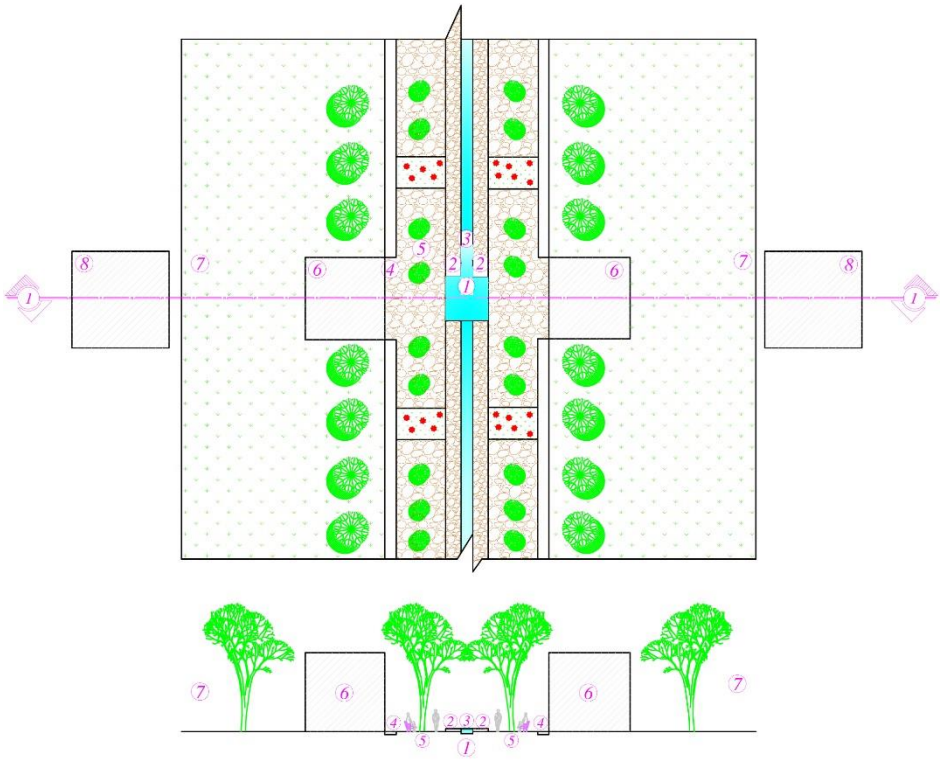


Figure 19: Plan and section from Chahar Bagh's Avenue based on Chardin explanation (Author: 2015)

In plan:

1- Pond with variety of shapes, 2- Stream's grit edge, 3- central stream, 4- walk way, 5- rows of trees, 6- entrance gate, 7- garden, 8- garden's pavilion

In section:

1- Central stream, 2- pond's edge, 3- fountain, 4- walkway, 5-rows of trees, 6-garden's entrance, 7- garden

It is notable that Pietro Della Valle (1843) also indicated several pools and ponds along the boulevard. He also alluded to the stone-lined canal alongside the area, which fills the pools (Honarfar 1969: 2-14); this is reflected in Iskander Berg's explanation that the "…canal was stone lined…"(McChesney 1988: 124). Figure 22 shows Pascal Coste's lithograph (1840), indicating pools and a central stream as well as the trees lining either side of the Boulevard. Landscape design inside the gardens followed an architectural standard and the grounds were planted with different types of fruit tree. The pattern of design for such gardens is similar to the layout of the

Timurid that Chahar Bagh referred to in Ershad al-Zera'a by Heravi (McChesney 1988: 110-113).

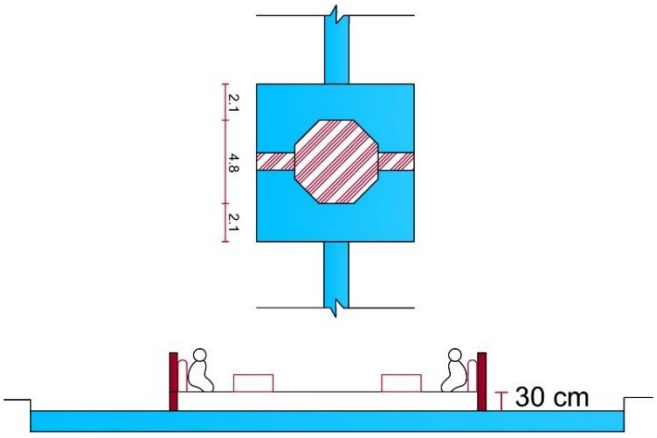


Figure 20: Plan and section of the second pool with octagonal throne in the middle of it based on Chardin's descriptions (Author 2015)

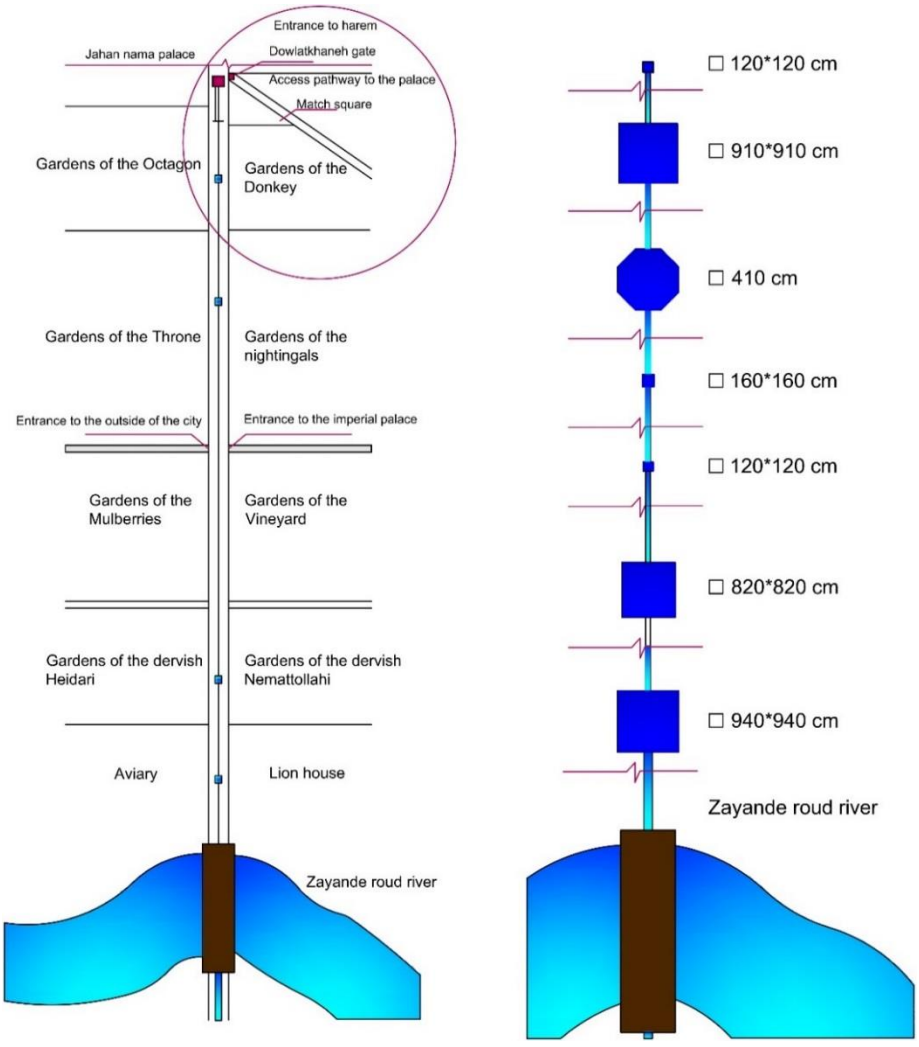


Figure 21: Heptad pools' dimensions and gardens around each pool based on Chardin's descriptions (Author: 2015)

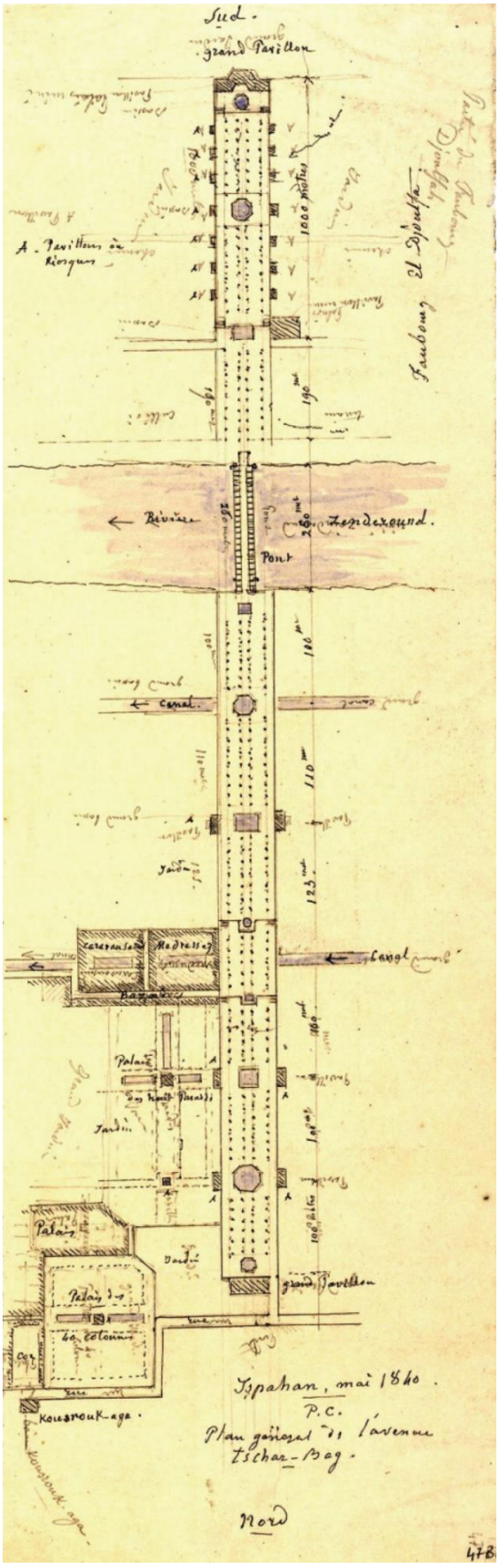


Figure 22: Pascal Coste's plan of Chahar Bagh in 1839-1841 (Isfahan Cultural Heritage Library)

Walcher (1997: 330-336) believes that earlier gardens existed outside the central city of Seljuq. He added that Bagh-I Naqsh-i Jahan and Dawlatkhaneh were known since the fifteenth century and he supported this supposition by referring to a sentence quoted by the Venetian traveller, Michelle Membre in the autumn of 1540, who noted the beauty, the fine drinking water, and "many waters and gardens" outside the city, which he had found enclosed by a mud wall (Walcher quoted from Membre 1997: 336). Notably, the gardens along the Chahar Bagh were continued under Shah Sulayman (1666-1694) including Bagh-I Khargah (Gardens of the Donkey), Bagh-I Hasht Behesht (Eight Paradise Garden) and Bagh-I Musama and Bagh-I Takht (Gardens of the Throne). These four gardens were known as the royal garden (as illustrated by the author in Figure 23). There were also seven societal lots including the Nimattollahi and Haidari[16], which were located between the four royal gardens and the Zayande Roud River (numbers 7 and 8 in figure. 23) (Walcher 1997: 330-345). A recent excavation by a group of architects and archeologist took place in the area in 2015 with the participation of the author. Results show two different dates for the foundations of Jahan Nama palace. Eight foundations were found, of which two are different in terms of height, material, and size from the rest. Six of them were found within 90 cm from the existing surface of the land and continued to a height of 220 cm, and materials used were a mixture of stones, sand, bricks, and lime. Two foundations were found in the heights of 190 cm from the existing ground level, continued to a height of 340 cm, consisting of one row stone, one row bricks, repeated for the whole foundation, which could be attributed to the Buyids dynasty. These discoveries prove the interpretations given by Walcher of the Safavid gardens of Chahar Bagh in Isfahan: Within these, Dawlatkhaneh and Bagh-I Naghshe-I Jahan were the only two existing gardens before Safavid, situated within the gardens of Chahar Bagh.

[16] Like most of the Safavid cities, Isfahan was divided into two parts; the east side of the Chahar Bagh was controlled by the Nemattollahies and the west part of the Chahar Bagh was under the control of the Haidaries.

Figure 23: Plan of Chahar Bagh's gardens after Chardin (Author, 2013)

1- Gardens of the Donkey
2- Gardens of the Octagon
3- Gardens of the Nightingals
4- Gardens of the Throne
5- Gardens of the Mulberries
6- Gardens of the Vineyard
7- Gardens of the Dervish, Nemattollahi
8- Gardens of the Dervish, Heidari
9- Lion house
10- Aviary

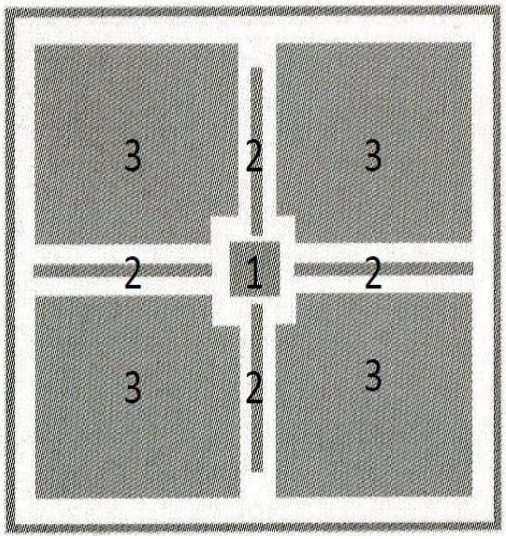
3.4- Chahar Bagh Avenue and its Gardens

In its heyday, Chahar Bagh was similar to a Persian carpet conjured in three dimensions and surprised European visitors such as Chardin, whose response was, "I have never seen such beauty in another city" (quoted by Ferrier 1996: 44-65).

Architecturally, the phrase "Chahar Bagh" is from Persian vocabulary and refers to the creation of a simple single rectangular garden enclosed by walls, divided into four quarters by two perpendicular lines (pathways). In most of the cases, a pavilion is placed at lofty heights at the centre of the canals' intersection and walkways in the middle of the garden (Figure 24). Long narrow canals elaborated by large pools in the shapes of circles, rectangles, squares or octagons, are mostly introduced inside the pavilion beneath a domed roof, an example of which can be found in the Hasht Behisht Garden (Figure 25). The origin of such design dates back to the pre-Islamic times (529 BC) in Pasargadae, the capital of Cyrus, the Great (Shahcheraghi 2012: 90-121). The origin of the Persian gardens is discussed later in the thesis.

The term 'Chahar Bagh' applied to the Shah Abbas Avenue of Isfahan for sixteenth-century Isfahan. Although Chardin indicated that the name of this boulevard was derived from four vineyards rented by Shah Abbas to establish his plan (Cantacuzino

and Beowne 1976: 255-321), it could also be argued that the name of the street could also have been derived from the pattern of each individual garden created along both sides of the boulevard (Figure 23).



1- Pavilion
2- Stream and walkway
3- Orchard

Figure 24 : General layout of Chahar Bagh (After Shahcheraghi 2012:42)

Figure 25: Coste's Isfahan, interior of Hasht Behisht (Coste 1867: 63)

A majestic pathway erected to the west side of the Maidan-i-Shah, running for four kilometres from the extreme end of the royal complex towards the river, extended to the royal gardens of Hezar Jarib. There was a central canal with little falls of water from terrace to terrace and detained in big rectangular basins edged with onyx. Either side was planted with rows of Chenars (plane tree). Chardin stated, "Abbas would allow no tree to be planted when he was not present and that under every tree was buried gold and a silver coin of his reign" (Blunt 1966: 73). Kaempfer claimed that nowhere did plane trees grow to such a height except in Isfahan. It was a place for people to rest under the shady Chenars known as *Taghe Sabz* (Green vault) (ICHHTO 2010: 30-364).

According to the explanation of Wilber, *Bulbul* (Nightingales), *Tutestan* (Mulberries), *Takht* (Throne), and *Behisht* (Paradise) were some of the gardens along the boulevard, and the pavilions of Jahan Nama, Hasht Behisht, Abbas Abbad and Nastaran located in the centres of the gardens all represented the formal pattern of the Persian garden - Chahar Bagh (Wilber 1969: 79-120). It could be claimed that these combinations of palace and gardens became the metaphor for paradise on earth. Chardin described the beauty and variation of pavilions :

> Ces pavillions sont de differente construction and figure, mais ils sont presque tous d'egale grandeur, and tous peints and dorez fort materiellement, ce qui offire aux yeux l'aspect le plus eclantant &le plus agreable. (Hooshangi 2000:42).

Translated, this quote reads:

> The buildings are from different constructions and of different styles. However, they almost are of the same height and all painted with gold, which is the most glowing and pleasant for the eye (translated by the author 2015).

In Figure 26, Coste (1840) shows the Chahar Bagh Avenue when the great rows of plane trees (Chenars) had reached full maturity, offering a clear picture of the promenade as it was then. Summarising the layout of the gardens of Chahar Bagh, it can be assumed that there was a common pattern for each garden consists of two buildings, one built over the gate known as *Imarat-i-sardar* or *Dargah* (gate building), providing access to the main garden, and the second one with larger structure in the middle of the enclosed garden. From the upper loggia of the gateway (*Bala khane*), a splendid view of the formally planted garden has been offered for the visitors to understand the power of Shah Abbas in designing such metaphor.

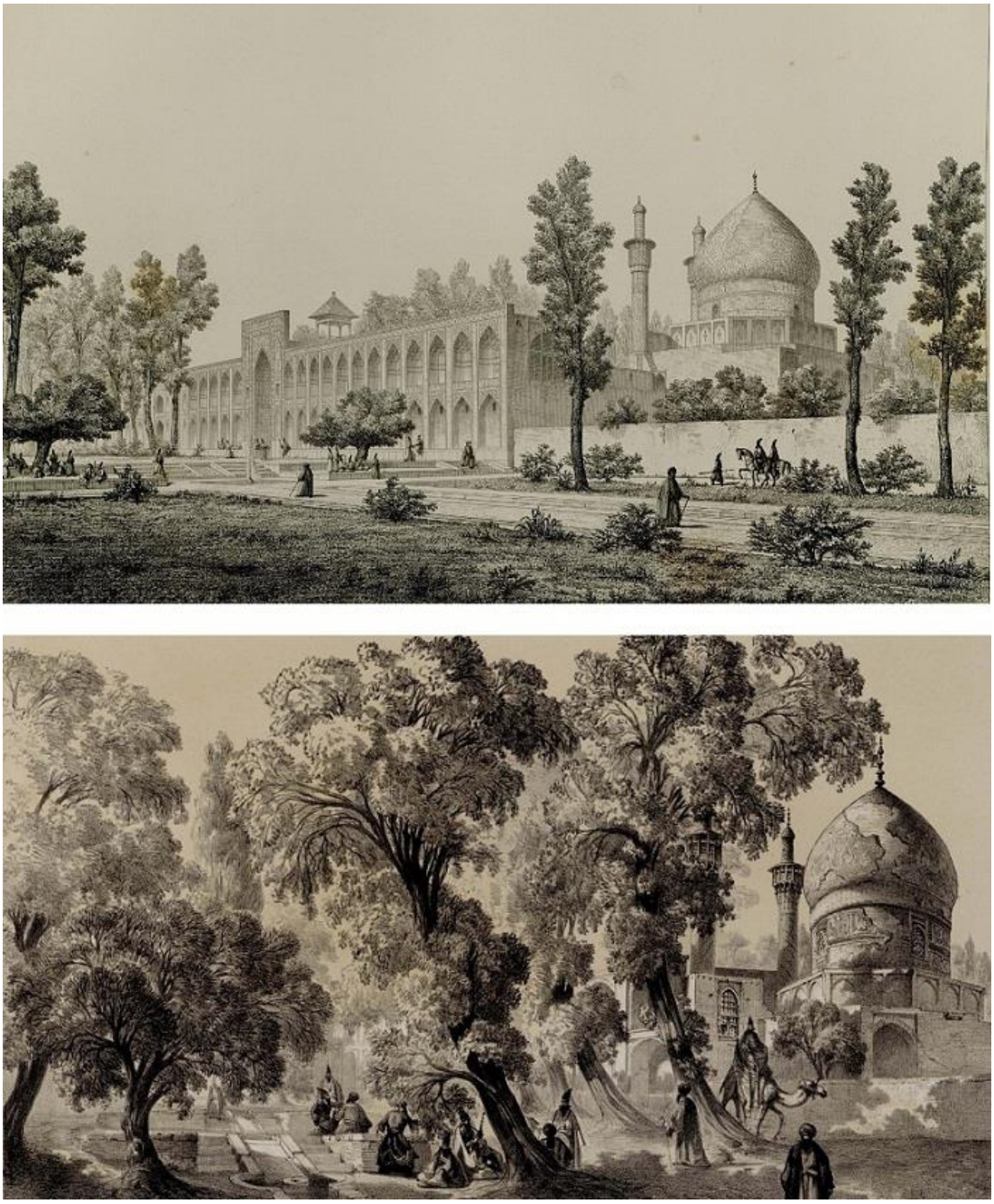


Figure 26: Top: Chahar Bagh Avenue by Pascal Coste (Coste 1867: 45), bottom: another litrograph by Pascal Coste from Chahar Bagh Avenue which shows the central stream passing down over little cascades (Coste 1851: 67)

Applying the element of 'pavilion' from the Persian garden to the Chahar Bagh Avenue, this is reflected in a three-storey cubic palace at the upper extremity of the Avenue connected to the royal complex through a closed walkway called Darvazeh Dawlat (The Royal Gate). Honarfar indicates that porches and lattice windows beautified the whole façade of this pavilion while the interior walls were resplendent with many painting and delicate decorations (Figure 27) (Honarfar 1967: 79-369). The name of this pavilion, Jahan Nama (The image of the world) clearly

acknowledges its function as the palace for the Timurid pattern of the Chahar Bagh Avenue.

Figure 27: Isfahan, Kashi- tile ornament above side entrance of Jahan Nama, A side of the Darvazeh Dawlat made during the Afghan invasion (Tomson 1981: 333)

The angle between the royal complex and the Chahar Bagh axis created an unusual composition, which shaped another garden named Guldaste Garden (indicated in Kaempfer's lithograph). This garden was a special green enclosure in the Safavid town, producing a new pattern in Persian gardens. Furthermore, it was an intelligent solution for filling the imposed gap between the royal complex and the famous Safavid Boulevard due to its octagonal pattern (Figure 28). The garden geometry derived its pattern from the sixteen-sided pavilion. The formation of the Avenue and the four channels was also based on the garden geometry; therefore, the common layout of Chahar Bagh - a walled rectangular garden with two cross paths or watercourses - could not be achieved in this garden (Alemi 2013).

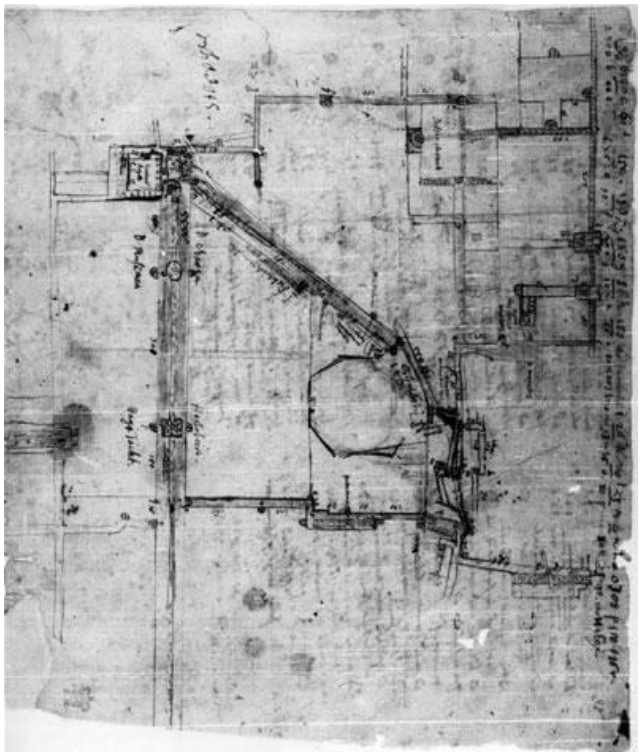


Figure 28: Location of bagh-i guldasta in the dawlat khana by Engelbert Kaempfer 1840 (www.middleeastgarden.com)

Making a comparison between Wilber's recent plan (Figure 29) drawn in 1684 and Kaempfer's lithograph (Figure 30) could be useful in determining the accuracy of the Chahar Bagh layout. Considering Wilber's reconstruction plan, the main throughway of Chahar Bagh which is located between the royal complex and the river does not match with the site description by Kaempfer. Wilber (1969: 79-120) pointed to a cluster of four pavilions scattered among the trees around a court which embraced a pool in its centre (number 4 in Figure 29). The significant problem in Wilber's reconstruction plan of Chahar Bagh is his superficial description of the royal complex in which he neglects the angle between the complex and the Chahar Bagh (number 4 in Figure 30).

The evident contradiction in Wilber's master plan can be identified as below:

I. The closed way (*rah-i-baste)* by which the royal complex and the start of Chahar Bagh Avenue have been connected; also the pavilion of Jahan Nama could not been seen in Wilber's plan while the current Guldaste Avenue lies on the pathway of the old road of rah-i baste. He also neglects the Jahan Nama pavilion in his plan.

II. The neglected Guldaste garden has been replaced by a complex of four pavilions including the guesthouse, the Building of Paradise, the Hall of

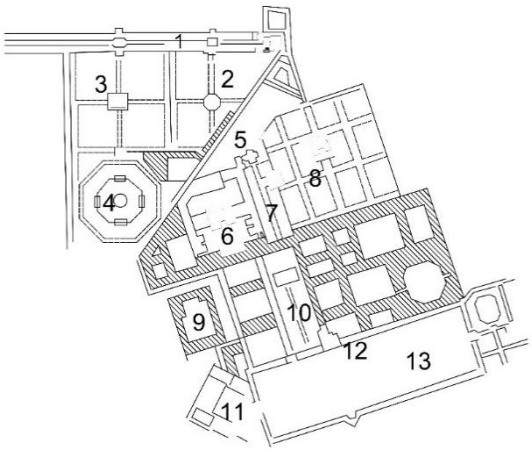
Mirrors, and the Building of the Sea. Comparing this with the formal pattern of Chahar Bagh - a rectangular fragment intersected by four walkways and a pavilion at the centre - the combination of these building around a central pool is to some extent odd due to its octagonal layout.

III. The service area has been omitted in Wilber's plan and the Talar-i Tavil (Palace of Stable) has been shown as the only palace of the entire royal complex.

It could be concluded that most differences between Wilber's plan and Kaempfer's lithograph lie in the spatial arrangements and complexity.

1- Chahar Bagh Avenue
2- Baghe Khargah
3- Hasht Behisht
4- Four buildings
5- Chehel Sotun
6- Kitchens
7- Talar-i Taval
8- Shah mosque
9- Ali Qapu
10- Mayian-i Shah

Figure 29: Wilber's plan of Chahar Bagh (Author 2014)



1- Chahar Bagh avenue
2- Baghe Khargah
3- Hasht Behisht
4- Guldaste garden
5- Rah-i Baste (closed way)
6- Shah residence
7- Khalvat garden
8- Chehelsotun
9- Kitchens
10- Talar-i Tavil
11- Shah mosque
12- Ali Qapu
13- Maidan-i Shah

Figure 30: Kaempfer's lithograph of Chahar Bagh (After Hooshangi 2000: 64)

The gardens of Takht (throne) and Hasht Behisht (eight Paradise), which faced each other, were complete examples to represent the formal pattern of Persian gardens - the Chahar Bagh. Thirty gardens were documented by Engelbert Kaempfer[17] along the Chahar Bagh (Figure 31), among which some were developed as residences for the aristocracy and some for public use. The Chahar Bagh was connected to the gardens of Hizar-Jarib to the south of the Zayande Roud River, terminating in an extensive garden with the same name of Hizar Jarib. This main thoroughfare in the sixteenth century was known as Chahar Bagh Bala (upper Chahar Bagh).

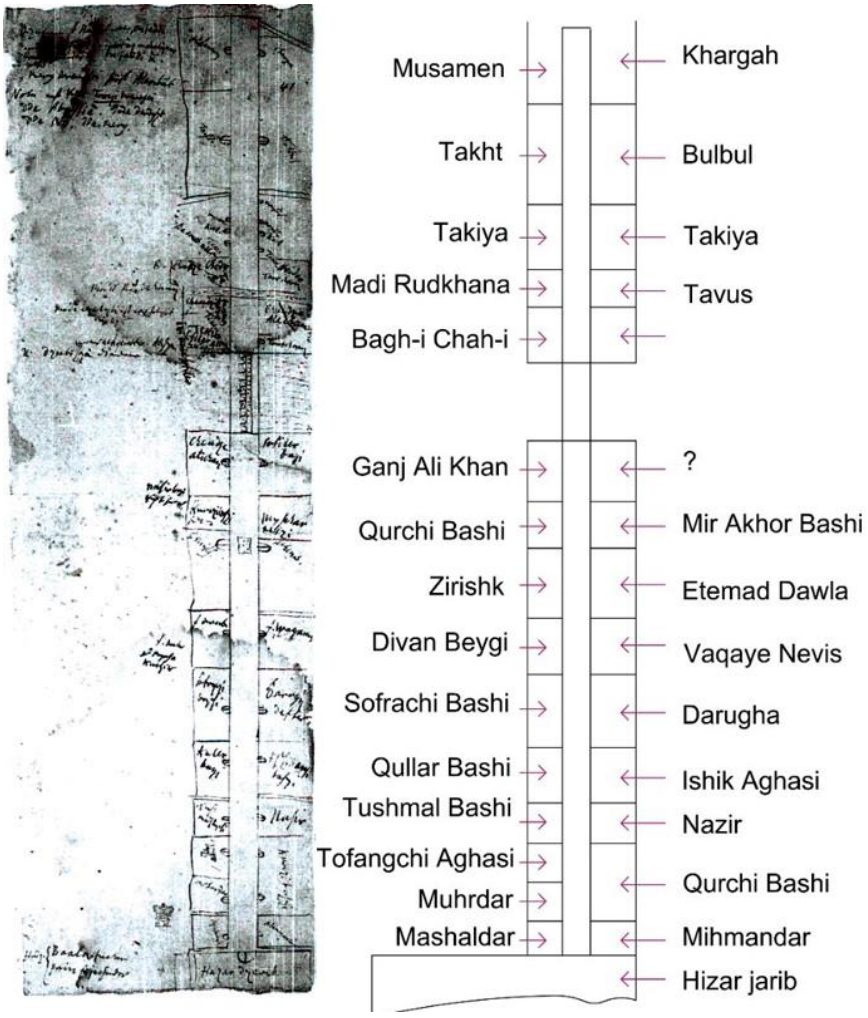


Figure 31: thirty gardens along Chahar Bagh Avenue by Engelbert Kaempfer (British Library, Sloane 5232 fol.41, www.middleeastgarden.com)

[17] Engelbert Kaempfer was attached to the embassy of Swedish king Charles XI as a doctor and secretory to the Persian court of Shah Sulayman. His drawing of Royal gardens of the Safavid can be considered as the very initial surveys of the Safavid gardens.

Figure 32 by Chardin shows the image of the southern part of Chahar Bagh, the most beautiful Avenue he had ever seen according to his statement (Wilber 1969: 79-120).

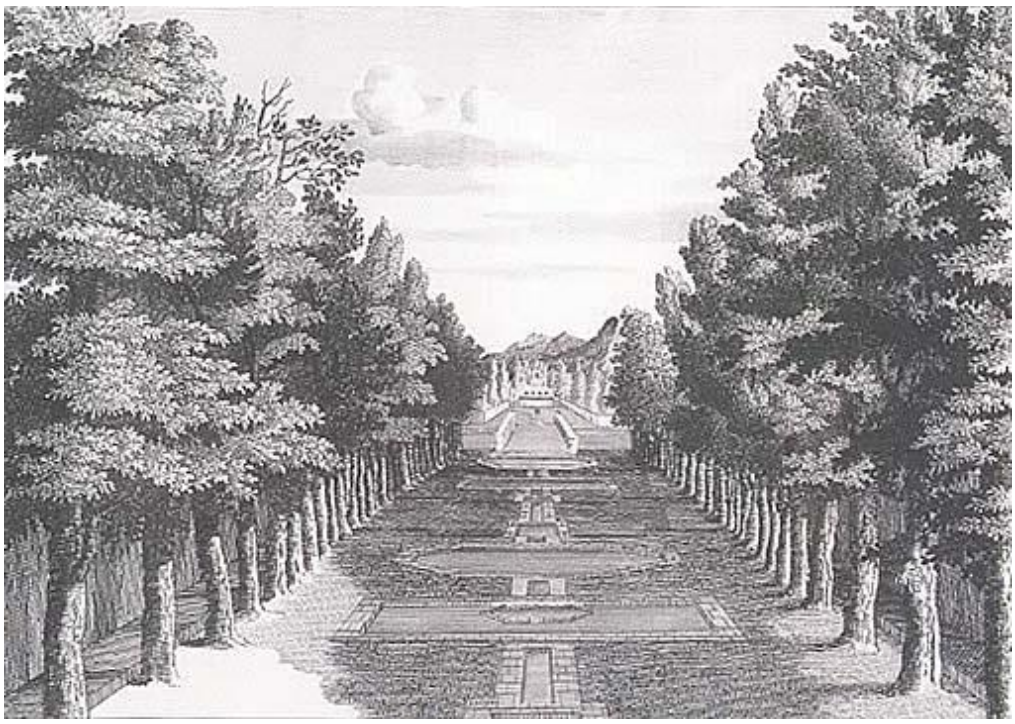


Figure 32: Chahar Bagh Hezar Jarib of Isfahan (Ferrier 1996: 61)

Dr. Joh Fryer described Chahar Bagh as a place which met all the pride of Isfahan with the variety of green trees flourishing, the smell of sweet odours, the flowing of clean rivers, and fountains that appeal to all the senses. The ravishing sights of the delicate summerhouses beside each pond offered all the advantages for recreation and delight (Walker 2013). Identifying the structure of Chahar Bagh's surrounding gardens, of which I gave two examples, played a crucial role in highlighting the importance of this Boulevard in Isfahan. I started with Hizar Jarib garden (as the starting point for the Shah Abbas plan in the development of the first pre-determined urban pattern for the city) and the Hasht Behisht garden as the only surviving garden palace of Shah Abbas in Isfahan.

3.4.1- Hizar Jarib Garden

The garden of Hizar Jarib or Saadat Abad lay on the slope of Sofe Mountain to the extreme south of Isfahan from which a splendid view of the gardens, river and the city could be enjoyed. The Hizar Jarib garden was characterised by different terraces stepping down from the hillside of Sofe Mountain to the entrance gateway. A

number of terraces have been reported. For instance, in his Travels into Levant, Thevenot, first mentioned that there were six; however, when he climbed them he amended this number to 11 (Curzon & King 1986: 125-160). Sir Thomas Herbert also stated that there were nine terraces, but he might have been referring to steps not terraces (Iranica 2012). From all accounts, it could be concluded that Hizar Jarib or Saadat Abad gardens were extremely large and steep. Figure 33 shows the centre of the garden occupied by an octagonal palace overlooking the glorious sight of the town.

The major factor in Safavid town planning is the imperative feature of gardens in the overall urban conception. Both the enormous scale and the location of Hizar Jarib to the extreme end of the Chahar Bagh gardens' complex made it a salient and powerful terminus. It effectively imposed on the gardens in their entirety due to their location on the slope of the mountain (Schuller 2006: 169-219).

Hizar-Jarib means "a thousand hectares": each hectare was about half an acre of land; therefore, the area of this garden must have been extensive. Thomas Herbert paced the garden and found that from north to south was near to one thousand of his paces; from west to east about seven hundred; and it was surrounded by a three-mile-long stone wall in its circumference. Herbert also pointed to the line-pools of white marble, summerhouses and fruit trees in Hizar Jarib (Herbert 1677: 153-162). The notable point is that the gates were open on Fridays for the public to taste and enjoy the fruits of the Garden (Ahmadi 2012).

Lehrman emphasised the importance of Herbert's[18] description in his book *Some Years Travels into Africa and Asia*:

> Gardens here for grandeur and fragour are such as no city in Asia out-vies; which at a little distant from the city you would judge a forest, it is so large; but withal so sweet and verdant that you may call it another Paradise. At the west end of Spahawn (Isfahan) is that which is called Nazer-Jereeb (Hizar-Jarib); a garden deservedly famous. From the Maidan (Maidan-i Shah) if you go to this garden you pass by Cherbaugh (Chahar Bagh), through an even street near two miles long, and as broad as Holborn in London, a great part of the way being garden –walls on either side the street. Being come to the garden (or rather fruit forest) of Nazer- Jereeb, you find it circled with a high wall which is about three miles in compass, entered by three gates that are wide and well built. From north to south it was a thousand of my paces from east to west seven hundred (Lehrman 1980: 111).

[18] Herbert was with the British Embassy in Iran.

Entertainment, shady spots on hot summer days, and recreation were some of the features which are highlighted in the reports of travellers and writers (refer to footnote 12). I would conjecture that these features indicate five key urban features in the design of a successful public space from an urban design view point including image and comfort, access and linkage, activity and usage, sociability, and spatial and formal characteristics. The gardens in Isfahan have represented the image of paradise for both visitors and residents. The arid and treeless plateau gave the gardens such a supreme value in which the image of paradise has been represented in the perception of their users (Wilber 1969: 79-120.).

Pietro Della Valle explained, "The Street finally ends in a vast garden called Hizar Jarib, the term *Jarib* used as a measure of land of which the garden contains a thousand." He added that he also heard that " 'Ciahar bagh' meant four gardens, for there were four gardens here of which they have made one; and these are graded one a little higher than the other, so that the last is higher than the other" (Alemi 1986: 38).

In describing the garden of Hizar Jarib, both Iskandar Beg and Junaabadi pointed to nine terraces: each terrace is two cubits higher than the one below. In supporting the stated measurement for the garden Della Valle, I have considered the description of Junabadi in which 1000 Isfahani Jarib (acres) has been used for the total area. This would make it three times larger than the Maidan-i Shah with the total area of 300 *Jarib* based on his statement.

Based on the report of Thevenot, in his *Travels into Levant*, the entrance to the Hizar Jarib was through a great square court, including a one-storey building at its extreme end. The building consists of rooms on four angles and has the same prospect towards the garden (Alemi quoted from Theveno 1986: 38-45). The four orchards depicted by Pietro Della Valle are similar to the layout of Chahar Bagh described by Haravi in the gardens of Timur (which is discussed in detail in chapter 6) and they do not correspond to the cross plan introduced by Ancient Iranian landscaping of Acheamenid.

Briefly, Heravi started from the elements of enclosure in explaining the layout of Chahar Bagh. He mentioned that the layout applied to a one-cubit-wide channel by leaving tree cubits in space from the wall around the Chahar Bagh. On the sides of the wall were planted poplars from Samarqand. He emphasised that these trees were more beautiful than pine trees. Lilies bordered the other side of the channel. In the

case of Hizar Jarib, the walls with massive poplars, which highlighted the separation between the ideal fabricated nature of Chahar Bagh and the hostile nature of the hot and arid Iranian land, were complemented by pigeon towers set at the angles.

The main axis of the garden as an attraction element plays a crucial role in understanding the layout of Chahar Bagh. "There was a straight wide channel in the mid space which bring water to the tank in front of the building and on its borders camomile, lilies and tambourines make a pleasant prospect and on the two sides of the grand channel leave space for walkway" (Alemi 1986: 40).

All travellers believed that the most attractive feature in Hizar Jarib garden was the main axis

> A central stoned channel in the middle of the garden. Deep eight inches and wide three feet, with water jet every ten feet, which spout water high. Beneath each terrace, where the water falls on a slope making a waterfall, there is a basin ten feet in diameter, and on the top there is another greater one more than one toise (1.95m) deep with water jets in the middle and around. These basins have different shapes; round, square and many sided. That of the third terrace is twelve sided and three hundred feet around. (Alemi 1986: 40) (Figure33).

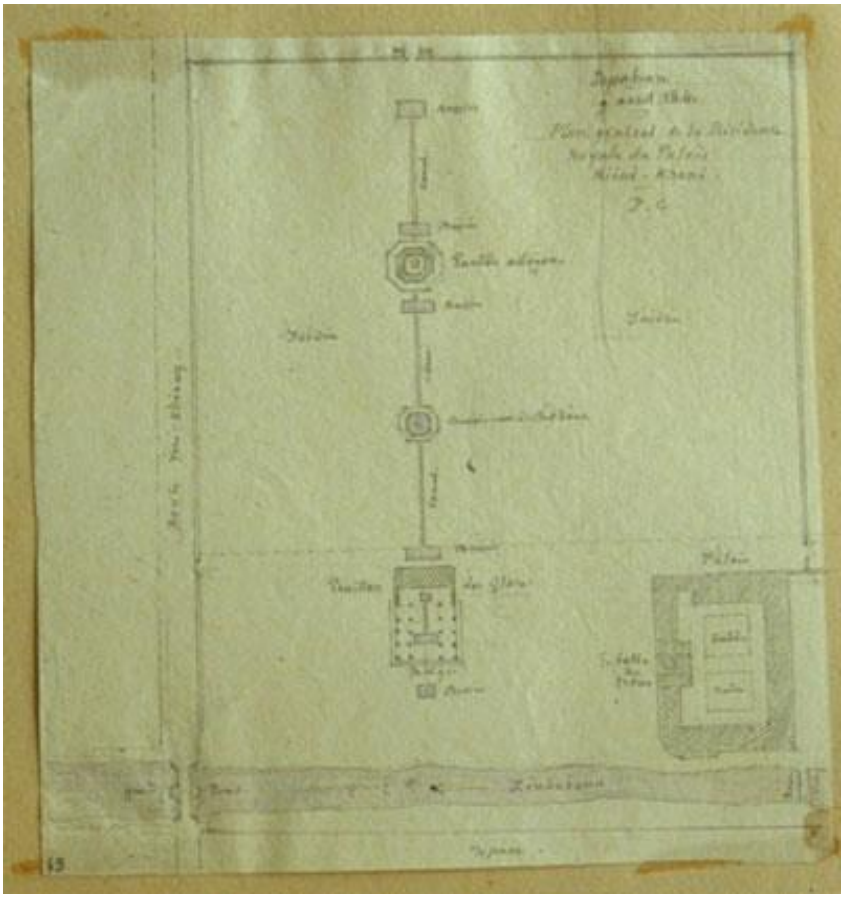


Figure 33: Layout of bagh-i Saadat Abad by Pascal Coste showing the various shape of basins described by Alemi (www.middleeastgarden.com)

It is unfortunate that, today, the beautiful Chahar Bagh can be found only in the reports of travellers. Chahar Bagh started from Shohada square at its north point where the Jahan Nama palace existed, and continued over the Sio Se Pol (Allahverdi Khan) bridge to the Hizar Jarib Street at its south point. All of the gardens on either side of the Chahar Bagh have now vanished due to modernisation except for one, known as Hasht Behisht (eight paradises) which is currently undergoing the process of restoration. I have chosen the interpretation of Hasht Behisht as an example of Isfahan Safavid gardens.

3.4.2- Hasht Behisht Garden, Madrassah and Mosque of Madar-i shah

Based on Wilber's statement in his book *Persian garden and garden pavilions*, Hasht Behisht garden was erected in the vicinity of the earlier Garden of the Nightingales (*Bagh-I Bulbul*) during the dominion of Shah Sulayman in 1670 and re-fashioned under Fath Ali Shah Qajar (Wilber 1969: 111). Figure 34, from Pascal Coste (1840), shows the plan and the section of the Hasht Behisht's pavilion. In analysing the picture, the octagonal form of the plan is the main distinctive feature shared by this palace and the rest of Chahar Bagh's garden palaces. An additional factor, though, - which makes this pavilion different from the rest of Chahar Bagh's pavilions, is the curious treatment of its corners (see the plan in Figure 34). Each corner holds a pile of rooms, each on top of the other, which become massive piers for the roof over a lofty central hall. Rooms were pierced with galleries and openings looking inside to the central waterhole and windows opening outwards to the garden. It has been said by Coste (1841) that each room has its own decoration, some with ponds, some with fountains fed by lead pipes embedded in the walls; others had ceilings and walls entirely covered by mirrors. The central well of the palace contains a pool and a fountain; running out of this water chutes stepped downwards and were extended out into the garden itself. Figure 35 shows the galleries and open upper rooms, and the central fountain, which repeated the octagonal shape of the garden.

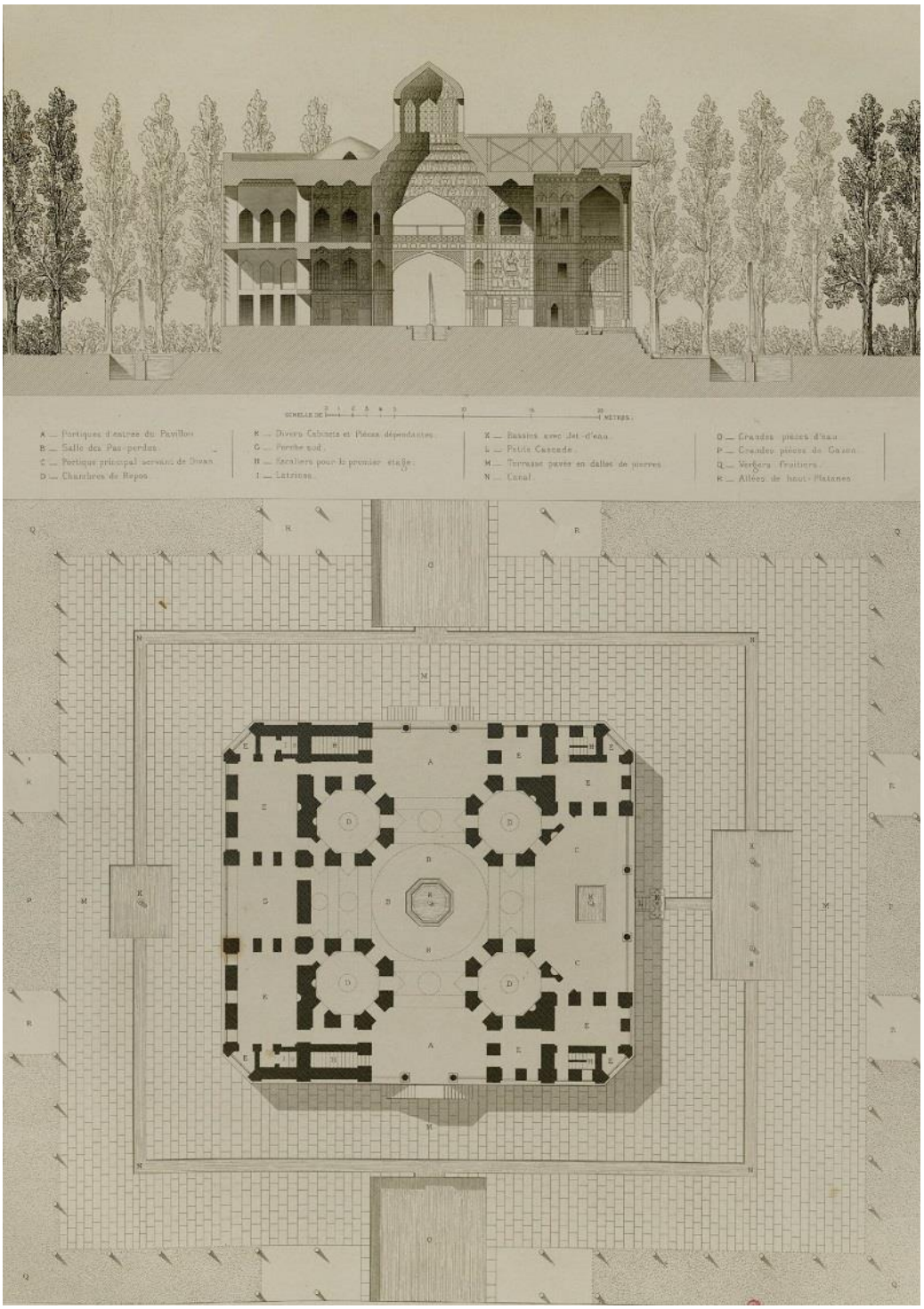


Figure 34: The plan and section of the Hasht Behisht Garden by Pascal Coste in 1840 (Coste 1867: 62)

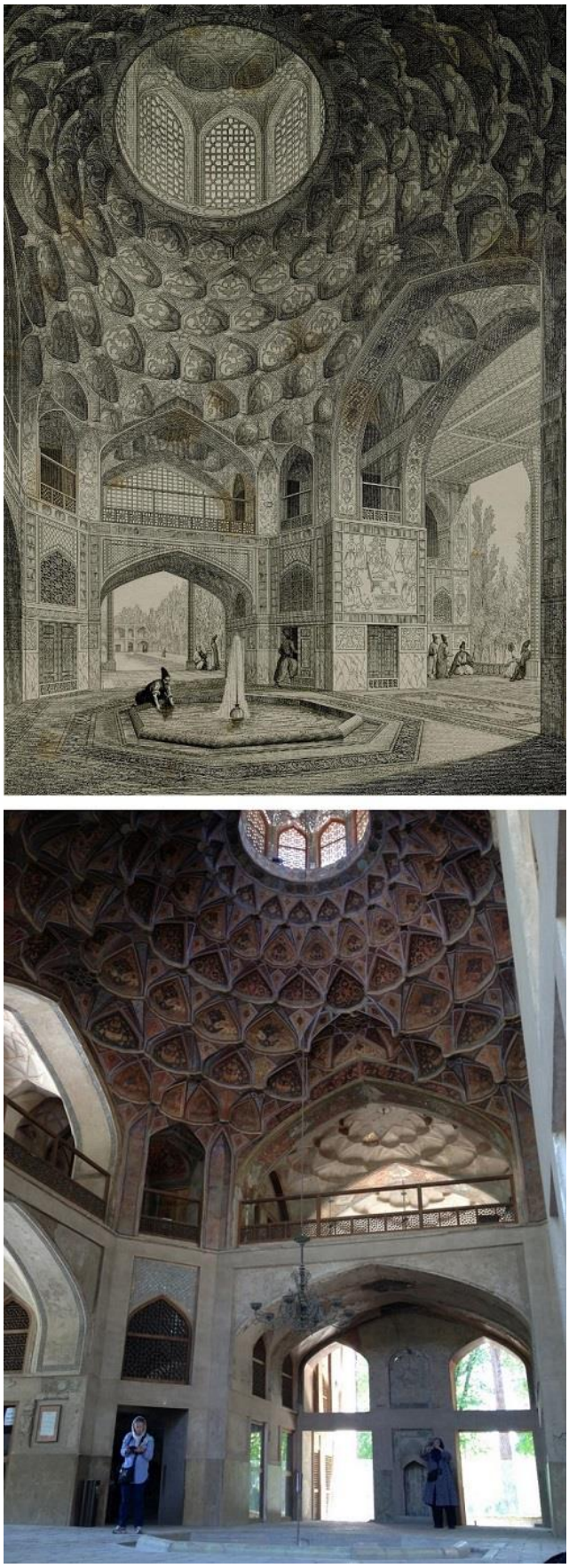


Figure 35: Hasht Bihest, the lofty central hall, top: by Pascal Coste (Coste 1867: 63), bottom: taken by author 2014

Figure 36 shows the great decoration of the Pavilion which dazzled visitors. In addition to the finely decorated garden pavilion, the Hasht Behisht is famous for embodying many of the ideas central to Islamic cosmology.

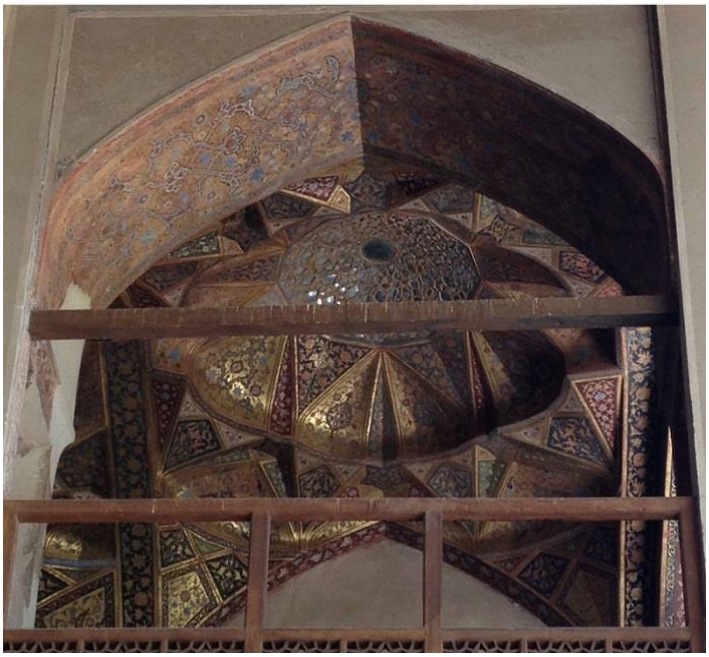


Figure 36: Part of decoration in Hasht Behisht Pavilion, top image by Pascal Coste (Coste 1867: 64), bottom image taken by author, summer 2014

Central to the concept of centrifuge in Persian and Iranian gardens (discussed in the following chapter) which has been emphasised by the canals extending out of the building, in the case of Hasht Behisht, the significance of the octagonal shape of the pavilion to the centre of the garden is concurrent with this concept. The emphasis on 'eight' is repeated over and over in this Safavid phenomenon: for instance in the eight-pointed-star pattern and in the recurrence of the octagon which represents the eight paradises, "surpassing the seven spheres and larger than hell which has seven floors, proving that the Lord's mercy is greater than his wrath. Moreover, the throne of God is supported by eight angels" (Brooks 1987: 87). This importance of eight can be seen in the Taj Mahal in the Mughal garden of India. Although Hasht Behisht remains an extremely decorative garden pavilion, it embodies many cosmological Islamic ideas. Comparing the pavilion's photo from Coste in 1840 and the one from the author taken in 2014, it is interesting that the building still evokes many features of the Chahar Bagh's Pavilion (Figure 37).

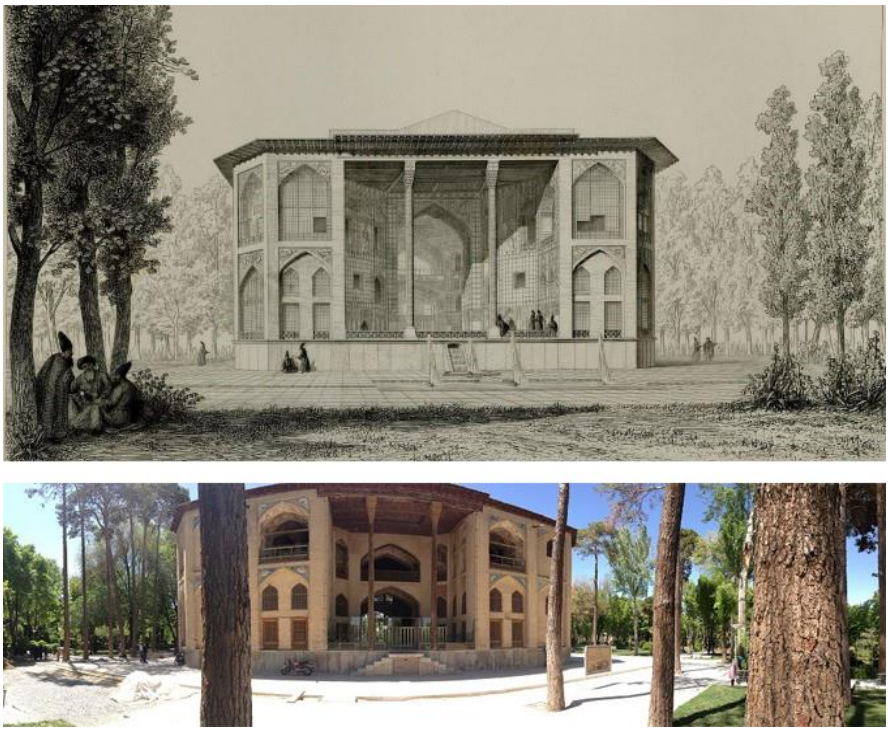


Figure 37: The central pavilion of the Hasht Behisht palace, the top image by Pascal Coste (Coste 1867: 61), the bottom image taken by the author, summer 2014

In analysing two more surviving areas in the Chahar Bagh Avenue, I considered Masjid-Madrassah and caravanserai of Madar-i Shah. Adjacent to the old Garden of Nightingale (Bagh-i Bulbul) is the late building of the Safavid called the Madrasa

Madar-i shah (the Theological College of the Mother of the Shah) built between 1706 and 1714. The entrance to the courtyard has been provided through wooden doors covered in silver and partly gilded. Figure 38 by Coste shows a lofty octagonal chamber, with a huge stone basin at the centre for the ritual ablution that passes through.

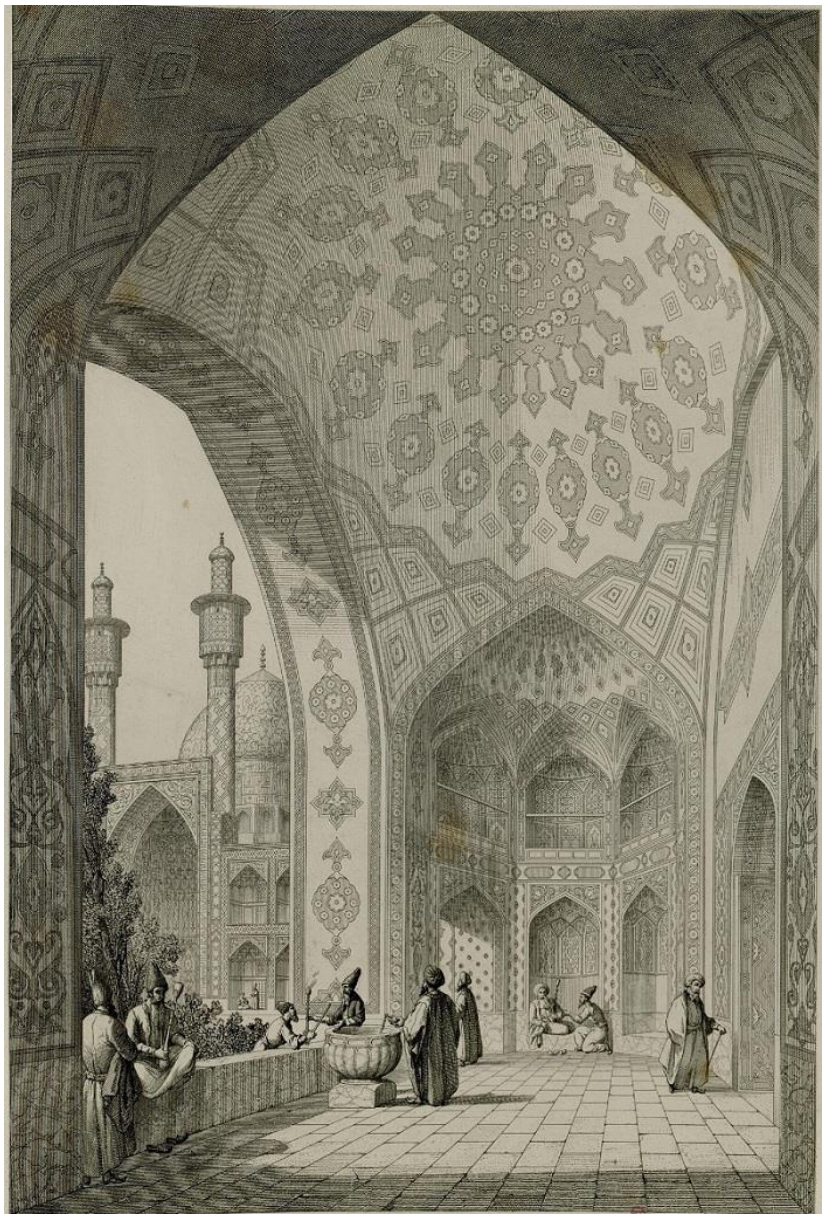


Figure 38: The entrance to the court yard of the Masjid-Madrassah of Madar-i Shah (Coste 1867: 47)

The calm and peaceful courtyard is shaded by lofty Chenar trees and surrounded by a series of two-storey rooms. A Mosque to the south of the courtyard, with a tall arched entrance chamber topped by two minarets fronting a domed chamber, beautified the area by creating a spiritual atmosphere (Figure 39).

Figure 39: Top: Panoramic view of the Mosque's entrance with two minarets and the dome, bottom: the two stories rooms surrounding the Madrassah court yard (Photos taken by author, summer 2014)

Next to the Madrasa is the Shah Abbas hotel, situated within the converted caravanserai. The main purpose for building this hotel was to provide income for the Madrasa. The courtyard is used by the hotel guests. Both these buildings were built six years before the Afghans attacked Isfahan in 1722 (Figure 40). Getting back to the crucial role this avenue played for Isfahan from the seventeenth century onward,

it should be considered that without Shah Abbas' political vision, this avenue could not been designed as perfectly as it was.

Figure 40: Top: the Madr-i shah carvanseray by Coste (Coste 1867: 53), bottom: the panoramic view of the Hottel Abbasi courtyard with the dome and minarets of the Madrasa Mader-i Shah beyond taken by author, summer 2014

3.5- The Importance of Safavid Political Viewpoints in The Creation of Isfahan's Unique Urban Pattern

The origins of Isfahan during Sassanid as a military camp made it a significant urban centre of the time. Shaahrestan Bridge (the oldest bridge over the Zayande Roud River), also with a military function, had been built during Sassanid to the east of Isfahan. There were many factors involved in the city development of Isfahan such as its enduring geo-strategic location, its agricultural advantages, and its facile and abundant supply of water from the Zayande Roud River. Furthermore, the location of the Isfahan at the centre of the transit commercial routes from China to the Ottomans and Europe, and also from the Persian Gulf to Russia along with both commercial and and agriculture bases played an essential role in making Isfahan rise and fall from imperial to provincial capital (Walcher 1997: 340-342).

Although Isfahan reached its zenith in architecture mostly during the Safavid, it was the political headquarters of Buyids, whose political authority in the tenth century

and early eleventh century represented a period of prosperity for the city. Isfahan held its feature as the political capital for most of Seljuq when the city wall outlined the domain of the Great Empire period and regained it five centuries later under Safavid. Above all, the political and cultural aspects and economic prosperity of Isfahan during Seljuq made it a unique city. The famous epithet of *Nisf-I Jahan* - 'half of the world' - dates to its position as capital during the Seljuq rule. Isfahan retained its position as a commercial centre during the Mongol dynasty. During this period, the region regained the political pre-eminence that it once enjoyed for the second time under Safavid when the empire expanded from Mesopotamia, Goejestan and Daghestan along the Qaraqum desert to the Sulaymaniya Mountains in the east (Walcher 1997: 336).

Discussing the Shah Abbas leadership of Iran -1587 to 1629 -, major problems such as the internal problem of Turkmen tribalism and external enemies of the Safavids including Ottomans in the west and Uzbek to the east beleaguered Shah Abbas.

Otamman and Uzbek overran a considerable area - almost half of the terrain given by Shah Tahmasp to his successors. Industry and trade suffered as the result of such disaster and standards of living were correspondingly wretched. It took Shah Abbas many years to overcome the crisis through applied policies while he repeatedly suffered from temporary failures. Nevertheless, his success along with his personality impressed people of Iran. After restoration in Iran (this situation could be seen in the architecture of the city, where the need for reconstruction of the city wall of the Buyid had been refused), Abbas became serious about establishing an effective administration to oversee the restoration (Walcher 1997: 342-348).

Development of transport routes was another policy applied to Isfahan by Shah Abbas The network of caravanserai, which are preserved to the present day and listed as characteristic monuments of Persia, are included in such a policy. These movements refreshed trade and industry and led to the improvement of people's living standards.

Qazvin was replaced by Isfahan during Shah Abbas and a specifically Safavid style of architecture with respect to the traditional architecture and decorative of Isfahan developed in Isfahan which still has the power to captivate the observer of today. Although the popular phrase of *Isfahan nisf-I Jahan* originated from Buyid architecture, it was once again reflected in the plans of Shah Abbas as a result of Islamic artistic creativity. Shah Abbas' international policy strengthened his

diplomatic links to the rulers of his times, including the the Great Mughal of India, the Khan of the Crimean Tartars and the Tsar of Muscovy, as well as many western powers. Contemporary descriptions about Isfahan and Shah Abbas written by travellers show the intensifying presence of western traders, artists, and monks who were free to move around, as they did not engage in proselytising activities among Muslims.

One of the key policies of Shah Abbas in the expansion of Isfahan related to population expansion. The economic life of the city could be developed as the result of a large population whose energy and skills would have a great influence on production and subsequently exportation. Shah Abbas transferred thousands of Armenian families from Azerbaijani city of Julfa to Isfahan, to the south west of the Zayande Roud River and gave the same name of their old town to the area. This was the greatest evidence of the success of such a policy. Although Shah Abbas was described as a good Muslim, his liberal outlook was evident in his tolerance toward Jews and Christians, particularly where he even had a church built for the Armenians known as *wank* (Figure 41). Communication between different people with different religious viewpoints was provided by generating the common area of Chahar Bagh, the main central public space for the city (Walcher 1997: 340-342).

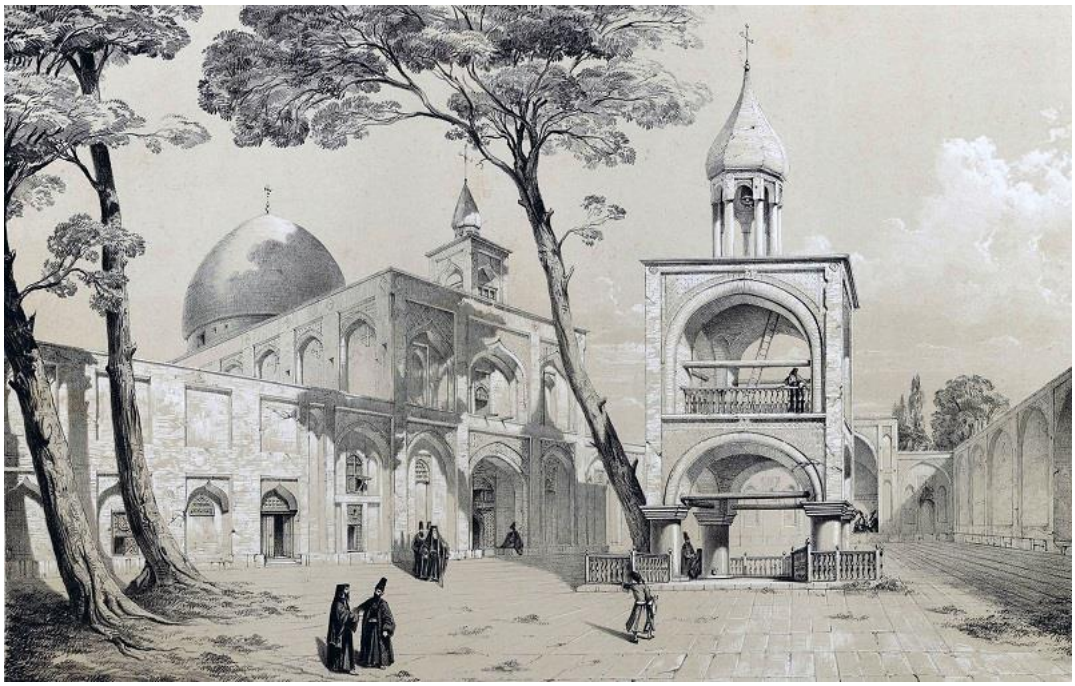


Figure 41: The court yard of the Wank church in Julfa (Coste 1851: 58)

Walcher states that “Shah Abbas’s plan for the reconstruction of Isfahan shows his intention to merge his national ambitious, political, and military expertise and the control of the Empire's administration along with introducing the Safavid power doctrine as the shadow of God on earth” (Walcher 1997: 340-345).

Shah Abbas’ policy in connecting the territorial and hegemonic aspects of the city is highlighted in the actions he took to connect the upper Chahar Bagh to the lower one via the Allah Verdi Khan Bridge. Walcher believes that “The name of Allahverdi Khan the Sepahsalar, (commander in chief), for the bridge contains a clear reference to the territorial and hegemonic connotation of the city’s design” (Walcher 1997: 340).

The majority of Isfahan’s lands were developed for the specific purposes of being part of the king’s court from the statelands under Shah Abbas, and the division of the land reflected a socio-political aspect rather than just a religious-metaphysical relation; in fact it could possibly be assumed that it reflected a socio-political feature in a religious-metaphysical framework (Chahar Bagh Avenue). From such a claim, the Quranic notions of Paradise derive their imagery from contemporary pre-Islamic and Persian traditions. These traditions shaped the aesthetic outline for the Shi’ite state and orthodoxy whose direct political legitimacy came from Shah Abbas’ religious system to make a connection between the pre-Islamic tradition of monarchy and Shi’ite legitimacy thought with an emphasis on power, loyalty and a statement of political dominion which was introduced to Isfahan by the construction of Chahar Bagh by Shah Abbas.

Both, the worldly political power and the theological mandate of the monarchical authority of Shah Abbas were brought together as the symbolism of Shah Abbas’ influence in the urban pattern of Isfahan through which the Safavid Shah Abbas provided a balance between divine kingship and Shi’ite legitimacy. Four main features of political consolidation, the epitome of centralisation and expression of dynastic legitimacy, along with the exercise of power of territorial control, were represented within the Chahar Bagh gardens at the residence city which was the centre of power for Shah Abbas (Walcher 1977:345).

3.6-Conclusion

In conclusion, the urban significance of the Chahar Bagh cannot be emphasised enough; a unique pattern and structure presented itself to Iranian cities after the construction of Chahar Bagh by Shah Abbas - a great pathway which creates a perpendicular grid of plots with a straight layout. Chahar Bagh was not directly connected to the Maidan-i-Shah; instead, it was situated about 580 yards to the west, and the space between the Avenue and Maidan used to be occupied by gardens and the royal complex. All the area of palaces and royal gardens represented the vision of urban planners for the Chahar Bagh as a massive garden in the middle of the desert. The Chahar Bagh demonstrated not only the contact network between the royal complex with the suburban gardens of Hizar Jarib across the Zayande Roud River via the Allah-Verdi Khan Bridge, but also the backbone creating the linear arrangement of gardens. Each of the gardens was accessed through a gateway which, positioned symmetrically either side of the walkway, generated an exceptional urban façade. These spaces with different dimensions and semi-similar forms and architectural devices were considered as a structural bone in the urban fabric which presented a tendency toward rhythm, symmetry, hierarchy and differentiation of axes. Chahar Bagh was essentially a garden and a promenade on a large scale with shaded walks. This space found an analogy in the Maidan-Shah, the court of the Mosque and the courtyards. The Avenue reflected the regular, ordered elevation of the Shah Square with the symmetrical entrance recesses. Furthermore, the four segregated town quarters linked together by the Chahar Bagh Avenue unified the segregated neighbourhoods. Abass-Abad to the north west of Chahar Bagh with the old town situated at its north east were connected to the new Christian Quarter of Julfa in the south west and the settlement of Zoroastrians to the south east (Figure 42) (Cantacuzino and Browne 1976: 255-321).

In later centuries, coinciding with the reconstruction of the avenue, the urban furniture of the street such as circular benches and pavement played a crucial role in highlighting the importance of this street in Isfahan and the facilities it offers to people as a public urban space. By providing a peaceful space to seek relief from stress and by giving a sense of relaxation, it attracted the public to sit on the circular benches of the Chahar Bagh middle row and spend part of their time enjoying the surrounding garden views. Today, all the super-tall plane trees have become bent

with age, and some have become the victims of underground (public transport) construction. Nowadays, Chahar Bagh consists of deli shops on both sides, and the street lost its function to a massive dump for those deli shops. Local residents believe that the significant factors regarding the Chahar Bagh were its 16-metre-high trees and turquoise domes which have disappeared due to the disorderly modern development in the historical context of the Avenue. On the other hand, as a feature of modernization, the effect of vehicular traffic is an additional problem of Chahar Bagh which has been discussed further in detain within the chapter 9.

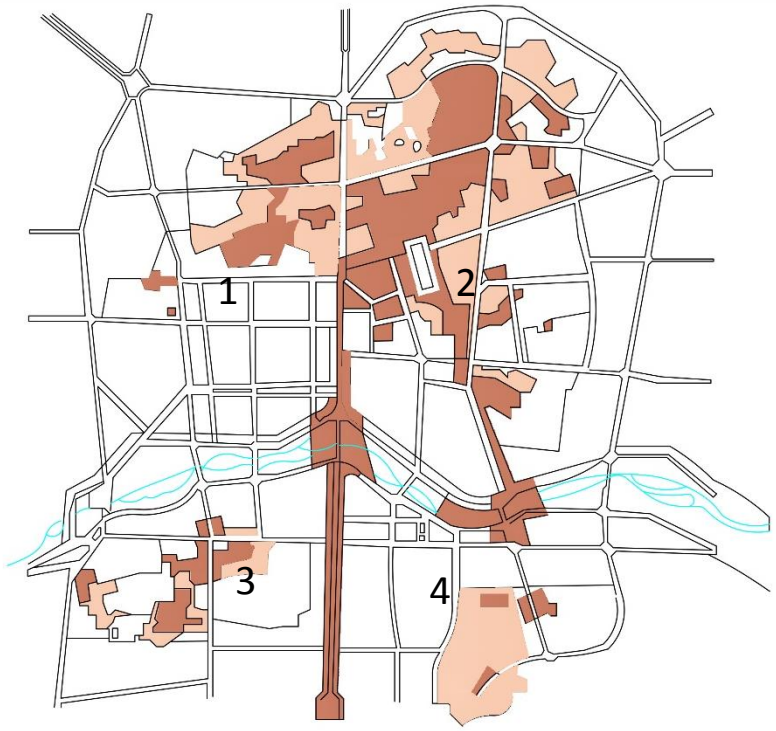


Figure 42: Four segregated town quarters linked together by the Chahar Bagh (After Khodabakhsh 2008: 108)

1- Abass Abad
2- Old Town
3- Julfa
4- Zoroastrians

Garden Origins

4.1- Introduction

4.2.- Chahar Bagh's Concept and Etymology

4.3- The Origin and Concept of Garden Design

4.4- Synthesis of The Pasargadae Plan

4.4.1. Water and Plantation in Pasargadae

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Chapter 4: Garden Origins

4.1- Introduction

Analysing the gardens of Chahar Bagh's Avenue as representative of Islamic gardens in Iran under the Safavid Empire required fundamental information regarding the origin, concept and distribution of the art of garden design, rooted in pre-Islamic gardens. The reference point for the analysis of the pre-Islamic gardens is the gardens of Pasargadae, dating back to the time of Achaemenid. One of the early states conquered by Islam was Persia; for over a thousand years, Persians were the major power in Western Asia and many Arab rulers had been their vassals. Islam expanded into Persia and superseded the dominant religion of Zoroastrianism which venerated fire as the manifestation of the divine. Although the Arab invasion introduced few architectural traditions into Persia, Persian architecture, in which the garden held an undoubtedly prominent position, continued. Hence, it is in the early Persian origins that we have to seek for the garden's source (Shahcheraghi 2012: 90-121).

The Persian word of *baagh*, employed in Chahar Bagh Avenue, is a synonym for the Avestan word, *baga* and the Sanskrit word *bhaga*, which meant 'assets'. Most linguists are of the opinion that *baagh* has been derived from the original word, *Bagh,* always meaning God in Achaemenid inscriptions. In Zoroastrianism *Bagh* also means *Ahouramazda* (God) and in the Avesta –Zoroastrian holy book- the word is used to mean 'Lord'. In addition to the spiritual meaning, *baagh* has a secular meaning: that of a place divided into different parts. Accordingly, the etymon for *baagh* could be described as a sacred place in which Lord offers his blessings to the humans (Shahcheraghi 2012: 90-121).

This chapter mostly deals with the concept and origin of the *chahar bagh* gardens to identify the key factors involving in formation of such gardens. It begins with a terminological discussion of the *chahar bagh* before proceeding to the analysis of the pre-Islamic Persian gardens, including those from the Acheamenid and Sassanid periods, and concludes by highlighting the factors that contributed to the identification of the famous structure of the *chahar bagh* as a reference archetype for designing the later gardens, reflecting on how the idea of the terrestrial Paradise was explored through the art of landscaping and garden design in later Persian gardens.

4.2- Chahar Bagh's Concept and Etymology

'Garden' in ancient Iranian times meant a piece or portion of land or property which was planted with trees, bushes, or even with sown plants, set out in precise rectangular sections. As could be inferred from various fragments of historical information, 3000 years ago, Iranian houses had gardens, which usually consisted of an attached green enclosure. The term *Pardis* (Paradise) described this feature of Iranian architecture (ICHHTO 2010: 37-308). Understanding the etymology of *Pardis* helps us understand the possible influences of this word on the formation of Iranian pre-Islamic and Islamic gardens.

Iranian interest in creating gardens and flowerbeds around houses has roots in the original homeland of the Aryans, who used to surround their buildings with flowerbeds called "*pe ara deasa*", which means "surrounding the fort". In this term, the root word "*dis*" refers to building, and the one who constructed the building was known as the "*disa"*, a word equivalent for builder[19]. Therefore, *pe ara deasa* can be considered as the root for *Pardis*. This is a paraphrasing of a longer discussion that appears in the 2010 document of UNESCO World Heritage Centre provided by the Iran Cultural Heritage, Handicraft and Tourism Organization (ICHHTO 2010: 37-308).

Ali Akbar Dehkhoda, the great Iranian lexicographer, defined the term *Pardis* as "[b]orrowed from Median *Paradaeza,* meaning garden. The Persian term *paliz*, and the Arabicized *Ferdows* also derive from this term" (ICHHTO 2010: 37). In *Avesta,* the term *Pardis* is formed by two parts: *Pairi*, which means "the surrounding" and *Daeza*, which means "enclosed by walls". Combined, Pardis means "to surround the building by planting flowers or trees and enclosing it by walls" and represents the layout of the garden as an enclosure area with a central pavilion and surrounding flowerbeds and trees. The term *Paliz* is the modified form of the term *Pardis* in *Pahlavis* language, which came into use in the Dari dialect of the Persian language. Today the same term is used in English as *Paradise* and in Greek language as *Paradeiso*s, meaning heaven, a beautiful, perfectly green garden (ICHHTO 2010: 37-100).

[19] "Iranians' love of trees, water, and flowers has gradually turned into an eternal love which has manifested itself in Persian Gardens." (Wilber 1979: 17, Quoted from Arthur Pope)

The other term referring to such a graceful planted place is *bagh*; a Persian word used in the *Pahlavi* language (Middle Persian)[20]. Although some believe that this term is shared between Arabic and Persian, as has already been mentioned in the introductory discussion, the origin of this term is from the ancient word of *bagh*, meaning section or part. Therefore, *bagh* as a word is considered to be originally Persian, but has been borrowed by other languages over time, particularly following the conquest of Iran by the Arabs after 650 BCE.

The symbolic meaning of *chahar bagh* could be connected to the Quranic *Jannat* (the Arabic word for Paradise in Quran), a garden with the features of trees, flowers, and pavilions, and each of which is representative of some features of the created nature. Considering what has already been discussed, it could be hypothesised that the term *Chahar Bagh* is more linked to the idea of Paradise that has been recalled as *Vahish*, divided into the four domains of Good words, Good thought, Good deeds and Garotman[21], and formed the four graded terraces of *chahar bagh*[22] (Alemi 1986: 38-45).

4.3- The Origin and Concept of Garden Design

As highlighted within the studies of various archeological scholars, the oldest Persian garden was in Pasargadae (529 BCE), the capital of Cyrus the Great, 30 kilometres northeast of Persepolis, where the Achaemenian art developed and the founder of the Persian Empire (Cyrus the Great) was buried (Stronach 1985: 838-835). Although Pasargadae is now in ruins, the remnants of the buildings have survived, showing how beautifully this site was blended into the landscape to create a crucial ceremonial centre for for Persia (Wiesehofer 1996: 1-66). This site is unique for both historical and artistic reasons; in it the very early forms of Persian art and architecture manifested themselves (ICHOI 2002: 2-30). Pasargadae was built in accordance with mathematical and geometric design principles as well as some

[20] As one of the ancient Iranian languages was Middle Persian, known as Pahlavi. It was the Sassanid Empire (AD 224-641) Language. Pahlavi is a term more strictly reserved for a form of the language used in certain Zoroastrian writings (From the Circle of Ancient Iranian Studies, CAIS 1998).

[21] The 'House of Song', i.e. heaven. (var: Av. 'Garo-nmana', Phl. 'garodman', 'garotman') (From *http://www.avesta.org/zglos.html#Glos_G*).

[22] After death, a person's *urvan* (soul) is allowed three days to meditate on his/her past life. A troika consisting of Mithra, Sraosha and Rashnu then judges the soul. If the good thoughts, words and deeds outweigh the bad, then the soul is taken into Heaven. Otherwise, the soul is led to Hell (From http://www.avesta.org/zglos.html#Glos_G).

historical concepts such as the use of right angles to demonstrate novel features in relation to landscaping.

Both art and culture of Persia were influenced by the Mesopotamian techniques and concepts in which various methods of garden design coexisted. This impact was due to the vicinity and geographical similarities between the two civilizations of Persia and Mesopotamia. The presence of the Elamid Dynasty (2700 BC-539 BC) in the south part of Persia was possibly one of the essential factors in the formation of Persian art and culture (ICHHTO 2010). Studying the Mesopotamian and Elamid civilizations shows the interest of their people towards nature. According to Masseoudi in *Acquaintance with Iranian Gardens Bagh-e Shazdeh*, the common ethnic origins of the groups around the plateau contribute to the possible influences on the future of *chahar bagh's* concept (Masseudi 2009: 37). Comparing the scale of Achaemenid Gardens with that of Mesopotamian gardens, David Stronach provides the following conclusion:

> It was once believed that the Achaemenids modelled their gardens after those of Mesopotamia. Recent studies, however, prove that this is only one small part of a much larger whole. *Cyrus the Great* has undoubtedly employed methods inherited from *Assyria* and *Babylon* in order to deliver political messages through the architecture of Royal Gardens. The great range of his conquests, however, seems to have paved the way for two periodic alterations in the architecture of the gardens. Firstly, his tendency to establish his capital far away from all hostile lands had probably been one of the many motives, which led him to build his palaces in an area exceptionally bare of fortifications. Secondly, *Cyrus* gathered an interest in the use of stone, the techniques of which he had acquired following the conquest of *Lydia*. This led him to design and create watercourses and ponds of carefully carved stone. All this resulted in creation of the Persian Garden with its total balance and fineness, and, above all, creation of the prototype of *Chahar Bagh*, which was thus guaranteed to live long (Stronach 1989: 63-64).

The concept of the Persian garden came to existence following the creation of Pasargadae. It developed through the periods of times and reflected various influences from the location, beliefs and cultural tradition at each point in time. The gardens of Cyrus have exerted a profound legacy outside the borders of Iran, particularly in Europe, in countries such as Italy and Spain. Following Alexander's conquest of Persia, the Greeks adopted the Persian gardens, and the idea of earthy

Paradise was introduced to the Hellenistic gardens of the Seleucids and the Ptolemies (the final dynasty of Egyptian pharaohs) in Alexandria (ICCTUH 2010: 43).
Quintus Curtius, Xenophon and Plutarch are some Hellenic authors who gave consistent accounts of the paradisiac gardens (*paradeisos*/*paradeisoi* from Persian *pairidaeza*). Cicero employed Xenophon's initial description of the gardens of the younger Cyrus[23], son of Darius II, in his Philosophical treatise where he stated:

> ... to prove to you that he thought nothing so worthy of royalty as an interest in farming - he has Socrates [24] telling Critobulus [25] a story about Cyrus the Younger, King of the Persians, a man of out-standing intellectual qualities and a truly great ruler. It seems that Lysander of Sparta, himself a man of no mean endowments, had come to Sardis to visit Cyrus ... [who] took him to see a piece of land, fenced in and meticulously planted. Lysander expressed amazement at the height of the trees and at their neatly staggered rows... (Eduljee quoted from Kraut 1984).

Another related account in Xenophon's book *Economist IV* regarding the gardens of Cyrus is when he explains that Lysander had gone to Cyrus with gifts to see Cyrus's Paradise (garden) in Sardis. It was there that the beauty of the garden in which all trees were planted at equal distance surprised Lysander. Some of the most astonishing features, according to Lysander, were the long straight rows of waving branches, the perfect regularity, the rectangular symmetry of the whole, and the omnipresent sweet scents that assailed him as he paced through the park. What inspired Lysander's admiration of the garden was the talent of Cyrus, who mapped out and arranged the whole design of the garden. A conversation between Lycander and Cyrus is included to highlight the role and interest of Cyrus in designing and setting out his own garden:

> Lysander exclaimed to Cyrus the Great; "What say you, Cyrus? Did you with your own hands plant some of these trees?" whereat the other: "Does that surprise you, Lysander? I swear to you by Mithres (Goddess of water), when in ordinary health I never dream of sitting down to supper without first practicing

[23] Not to be confused with Cyrus the Great.

[24] a Greek philosopher, who regards matters of the mind as more important than those of the body (469-399 BC) (Kraut 1984)

[25] a childhood friend of Socrates (Kraut 1984)

> some exercise of war or husbandry in the sweat of my brow, or venturing some strife of honor, as suits my mood" (Eduljee quoted from Kraut 1984).

All above discussions confirm how the Achaemenid kings excelled in garden making and creating their *Pirari daezaa*. An enclosure, which has been translated into Greek by Xenophon as *Paradeisos*, and used for the Gardens of Eden in the Greek translation of the Bible. The personal interest of a king in landscape designing manifested once more during the Safavid dynasty in Isfahan, where Shah Abbas' creation of the *chahar bagh* gardens in a different pattern and scale changed the urban image of the city.

The concept of the Persian garden soon became the subject of discussion amongst classical Hellenic writers and philosophers contemporaneous to the Achaemenid period. Epicurus' philosophical school (341-270 BCE) was a garden both figuratively and metaphorically. Objectives of Epicurus' philosophy regarding his school coincided with Zoroastrian ideals (Eduljee, 2005). Attainment of peace and freedom from fear and the absence of pain are the goals of Epicurean philosophy, which is very close to the Zoroastrian aim in life: abiding happiness, peace and serenity. Based on the goals of Epicurean philosophy, in my opinion, the garden in the Epicurean version of the 'philosophical garden', signifies a philosophical retreat from the political sphere.

According to the Zoroastrians' goal of life, a garden as a Paradise is not only a place to develop a peaceful environment in order to enable a person to refocus, but also is a means to enable the person to develop an active, productive and useful life. This ideology also applied within the Chahar Bagh Avenue and its surroundings where the gardens of Shah Abbas in their functional approach acted as a place not only for recreation, but also a place to lead to an active and productive city life through making connections between different parts of the city with different groups of people. A Paradise-like garden is a place for mental and spiritual rejuvenation, as well as a place for individual introspection. The Pasargadae site, as an example of this, explains that for Persian kings their Paradise-garden gave them the opportunity to work and contemplate in a close proximity with each other.

4.4- Synthesis of The Pasargadae Plan

Pasargadae was situated in a silent and beautiful meadow in which two pavilions and a linking watercourse with pools at regular intervals were collectively described as a formal garden (Figure 43). Each of the pavilions faced watercourses and had an extensive colonnade larger than the building behind it known as *talar*. The *talar* space as an aspect to be viewed rather than used became the constant feature of Persian gardens.

A group of 14 monuments were found on the plain of Pasargadae among which the Royal garden as the representative of Pasargadae garden design is the interest point of this study (ICHOI 2002: 2-30).The location of the royal garden consisted of an area of Palace, which was a flat walled stretch of ground lying midway between the Cyrus's Mausoleum and the Tall-e Takht. As shown in Figure 43, the palace included two rectangular constructions called Pavilions A and B to the northeast of the Residential Palace and to the north part of Gate House. The garden area created between the Residential Palace to the north, the Audience Hall to the southwest and the Gate House to the southeastern corner. A spacious well-watered ground was the location of the Palaces of Cyrus, each of which was opened to a profusion of trees, shrubs and grasses. A length of over 1100m has been covered by the Royal Garden watercourses, which were set in a symmetrical pattern; this pattern determined the original position of the trees, grassed areas and the paths within the garden (ICHOI 2002). Figure 43 shows the components of Pasargadae, capital of Cyrus the Great.Brookes' quotation of John Chardin's statement on the layout of the Persian garden layout is included here to express the Iranian tradition in using gardens:

> The Persians don't walk so much in gardens as we do, but content themselves with a bare prospect; and breathing the fresh air; for this end, they set themselves down in some part of the garden, at their first coming into it, and never move from their seats till they are going out of it (Chardin quoted in Brookes 1987: 32).

The layout of the Pasargadae as an initial example of a typical *chahar bagh* garden originated from the grid network used as an irrigation system in ancient Persia that was developed later on in a characteristic geometric pattern (Figure 44). The

catchment pool – the main feature in the irrigation layout – as well as the overflowing water pools, usually raised above ground, were treated in a manner that became increasingly decorative. After the Achaemenid period, and during the Sassanid period (around the third to seventh centuries BCE), the presence of water in the art of garden design became increasingly important. This was due to the Zoroastrian religious influence, which worshipped water as one of the main elements of the creation of the world. This tendency was manifested in the creation of pools and ponds within the gardens of the Islamic time. As mentioned by Brookes (1987:30)," The pool as such reflects the heaven in its shimmering surface, thus uniting the exalted with mundane in a symbolism central to Islam perspective".

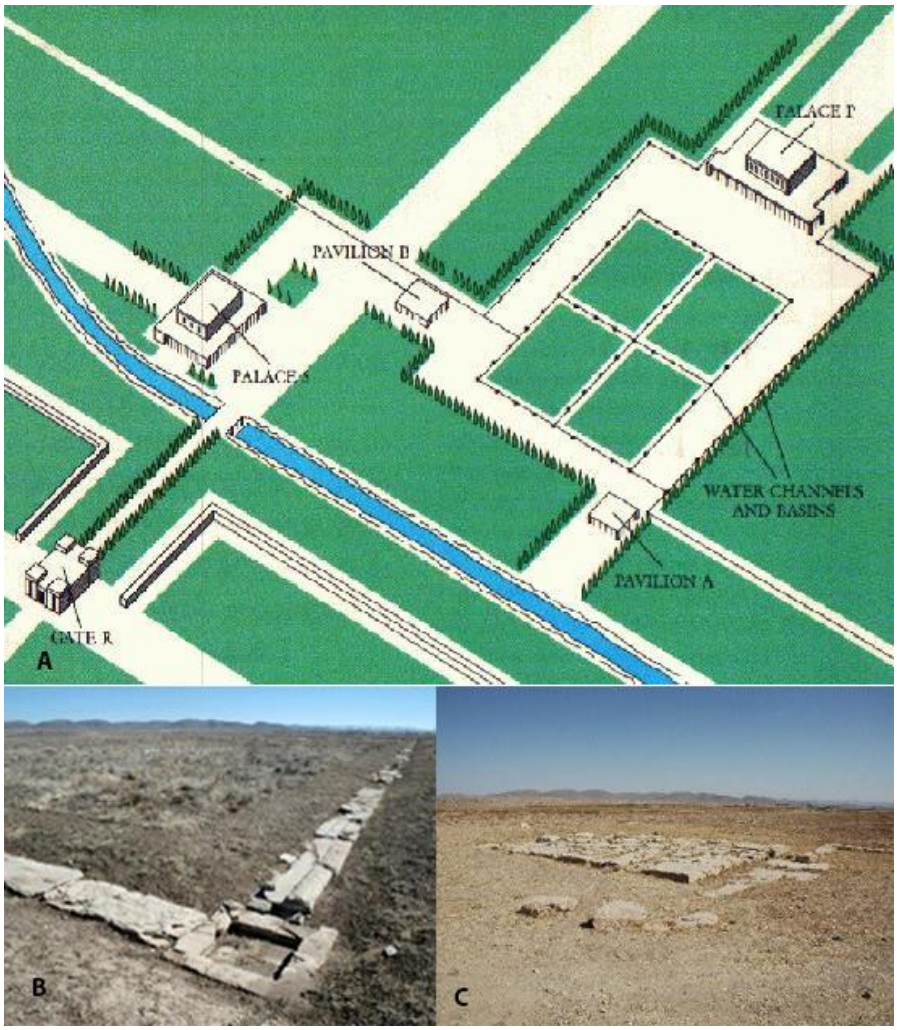

Figure 43: Layout of the Pasargadae palace complex, A: Pasargadae Landscape plan, B: Canals and fountain base, C: Pavilion B (Author 2014)

The investigation of the water channels involved the study of the land topography, as well as the location of the pavilions in Pasargadae gardens. A remarkable feature of

this investigation is the location of pavilions at the lowest ground level -unlike the Islamic gardens where pavilions are located at the highest level (Figure 45). This hierarchy is a unique feature in the construction of the Pasargadae gardens which may reflect the king's humility toward the unseen heaven (Labibzadeh et al 2011: 3-16). The initial land divisibility from where Islam came to represent the image of Paradise originated from the establishment of an irrigation system and was characterised by the application of inseparable features including plantation, order - such as geometry arrangements - and scale, as well as the feature of elements such as pavilion, wall, and pathways.

Figure 44: Redrawing of the irrigation system in Pasargadae gardens according to Stronach (Author 2014)

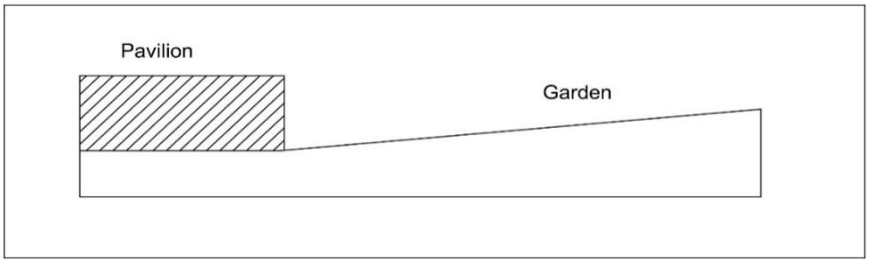

Figure 45: Diagrammatic position of the garden and pavilion in Pasargadae gardens
(Author 2015)

4.4.1. Water and Plantation in Pasargadae

Maria Brosius in Pollack's 1992 documentary, *The Lost World: Persepolis*, mentioned the presence of running water throughout the garden surrounding Cyrus' residential palaces. This water flow would refresh the area and cool down the air. In the absence of any archaeological evidence of the legendary gardens of Babylon, these channels are the earliest known evidence of a formal garden anywhere in the world. King Cyrus called his gardens *pairidaeza* – a walled garden – a term used across religious cultures to describe Paradise. Cyrus' created Paradise sought to perfect nature, it is where life existed protected, and where water was the essence of life (Brosius 2000). Figure 46 shows the excavated stone water channels of Pasargadae.

Figure 46: General view of the Apadana Palace's shows the excavated stone water channels (CAIS: 2006)

In the creation of a garden resulting from the fruits of thoughts and the knowledge of generations, irrigation system - representing the life-giving aspect of a garden - plays the main role. Therefore, it is crucial to understand how water was used by Iranians to irrigate the gardens and how a geometrical pattern based on an irrigation system evolved over time to become formalised for builders of later palace gardens. One of the features of the Iranian plateau are the mountains from which water flows in springs from melted snow in this otherwise arid, desert landscape. The lifetime of

these streams is short and many of them never reach the sea as they die due to the heat of the desert. Even the famous Zayande Roud River in Isfahan disappears into a salt lake after a few miles further on. Leading the water to villages through water channels, man started to dig subterranean water channels as early as the sixth century BCE, known as qanat in Persia. According to Brooks (1975: 28), "Qanats are contracted by digging shaft to pierce the permanent raised water table situated at the foot of the mountain".

Lengths for the qanats range from tens of metres to several kilometres. A number of vertical shafts punctuated the course to provide air supply to the diggers, as well as for the removal of the excavated material from the underground gallery. Thereafter qanats become open water channels, often flanked by chinar trees. The qanats fill the main tank, which also regulates the flow, wherefrom water flows out into the fields through a system of open channels that extend in a grid pattern for irrigating the fruit trees and flowers planted between them.

The plantation as an outcome of water distribution in the land is one of the inseparable features of pre-Islamic gardens. Here one may raise the question: what actually grew in the Persian garden? The tablets found in the great city of Persepolis listed the different trees and flora that were planted in Pasargadae. The composition of the garden was deeply symbolic. The descriptions on the tables show that there were thousands of seedlings for different types of trees including olive trees, mulberries, and dates, which were collected to be planted in the next spring. Cyrus imported them from all over his empire to reflect the size and the extent of his empire in this particular garden space. The Persian garden was thus also a political statement: by successfully growing plants in a barren landscape, collected from across the empire, this demonstrated to all who visited Persepolis that the Persians were the masters of the world. What Cyrus did here symbolised the king's ability to control life (Brosius 2000).

To summarise and conclude, Cyrus the Great's palace was situated within a large enclosure in the province of Fars from where Persia took its name. Stone-lined watercourses defined spaces between the main buildings, including two pavilions and a fire temple. The garden was designed in a geometrical plan in which the symmetry, hierarchy, harmony and balance between proportions of parts represented the classical geometry. Social activities and eating took place in the garden's pavilion, from where the whole landscape could be viewed. Fruit trees, such as

pomegranate and cherries as well as flowers, including lilies and roses, were planted within the garden. After Cyrus, Darius the first, who favoured the Zoroastrian religion and beliefs, built a new ceremonial capital at Persepolis in which the Pasargadae garden's features were repeated. Turner (2005: 86) states:

> His capital was geometrically ordered, representing regularity as an outstanding characteristic of ancient Persian garden and of subsequent Islamic gardens. The geometry was mixed with a love of water, trees and flowers, especially roses.

After the Achaemenid Empire, the Parthian and then the Sassanid ruled Persia. Analysing the Sassanid garden as an example of pre-Islamic extension of the Achaeminid garden indicates the influence they derived from the garden traditions that emerged earlier.

4.5. Sassanid Gardens

A thousand years after the death of Cyrus, the palace of Khusrau II (591-628 CE) continued to embody the same qualities as those of Pasargadae: the palace was set amidst an enclosure which, in turn, was enclosed by a much larger walled area. Like the Achaemenid Empire, during the Sassanid period (first and second centuries CE) garden design continued to be developed and spread across Persia under strong Zoroastrian religious influences that set a high value for nature. The mythical role of water guarded by the goddess Anahita had a great influence on the formation of the palace gardens of this epoch. Imarat-i Khosrow at Qasri Shirin in Firouzabad was one of the gardens, created in the vicinity of springs and ponds, among attractive natural settings (Figure 47). Probably the decorative pools and ponds in the later Islamic gardens were inspired by these natural pools and correlated well with Islam's special attention to water as the symbol of purity and cleanliness (Behbahnai &Khosravi 2012: 1-5).

The walled palace of Imarat-i Khosrow at Qasri Shirin built between 591 and 628 CE was located on a high terrace at the centre of a great paradisiacal garden, which also contained rare animals. Another wall sitting within the main wall enclosed the palace. Although the nature of this garden is unknown, the Arab historians who later described the palace infer the traces of a great pool between the palace and the

entrance. A vaulted passageway runs around the three sides of the eastern half of the terrace. Rounded arches pierced the outer wall of this walkway at regular intervals. Retreat from the intense summer heat was provided through vaulted chambers cut into the terrace on the inner side of the walkway, a feature similar to the colonnaded porticos of Pasargadae (Brookes 1987: 17-36).

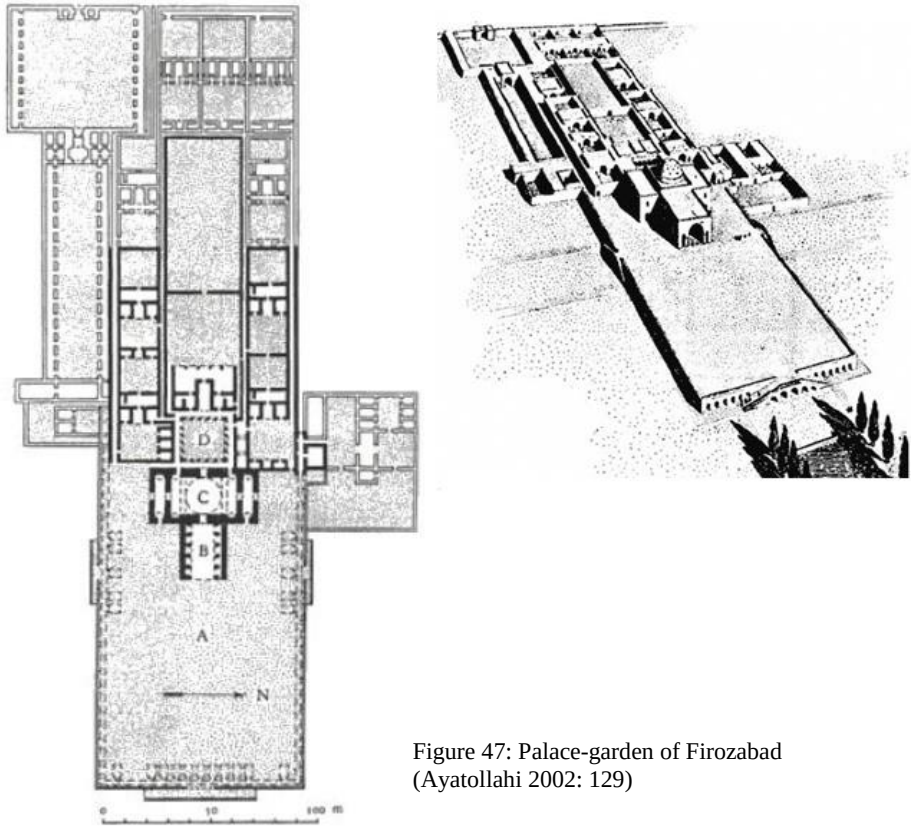

Figure 47: Palace-garden of Firozabad
(Ayatollahi 2002: 129)

What has been explained about the structure of Sassanid gardens is the typical spatial relationship between the palace and the garden, in which the pool is used as a means of irrigation as well as an ornamental feature of the space. The following conclusions can be drawn regarding Persian gardens and their context: Persian gardens usually used rectangular walled enclosures. Inside these, there were plantations and water channels to provide contemplation and spiritual nourishment.

After the seventh century CE, the Sassanid gardens were admired and imitated by Persia's Arab and Mongol conquerors. Following the Arab occupation, the aesthetic principles by which the garden is governed grew in importance. The Chahar Bagh Avenue as an example of this Islamic preference attempted to imitate Heaven and stress the importance of the theological aspects in Persian beliefs, and the way these were reflected in the creation of the Avenue (ICHHTO 2010: 37-101).

4.6- Conclusion

Not long after the death of Khusrau II, the new message of Islam entered the land of Persia in 637 CE, and Persia became a Muslim country. The Arabs had already conquered the whole of Syria and Egypt, and the entire coast of North Africa. Most of Spain, modern Turkey, and the bulk of Asia Minor fell soon after, within a few years (Gothein 1966: 27-41). Unlike the dynastic and political coherence of these immense conquests, religious unity as well as Quranic indication and precepts - particularly those concerning the qualities of Paradise - survived and linked to the general culture of Persians, and were represented in the gardens of the Islamic time (Thacker 1979: 27).

Analysing the evolution of pre-Islamic gardens after Islam until Safavid required fundamental studies in the transformation of gardens to the Middle East, North Africa, Italy and Spain. The key comparison elements in tracing of this evolution can be highlighted from the quotation of Vita Sackville-West:

> All Persian gardens are walled in…it would be churlish to complain of monotony in so graceful a sanctuary. But we may safely say that the layout was always more or less the same: the long avenues, the straight walks, the summer-house or pavilion at the end of the walk, the narrow canals running like ribbons over blue tiles, widening out into pools which oddly enough were seldom circular, but more likely to be rectangular, square, octagonal, cross-shaped, or with trilobed or shamrock-like ends. Sometimes these pools were reproduced inside the pavilion itself: a mirror of water beneath a domed roof, fantastically reflecting all the honeycomb elaboration of ceiling (Sackville-West quoted in Turner 2005: 91).

Accordingly, the key features involved in the creation of the comprehensive structure of Persian gardens can be identified as follows:

Order as in a manner in which the key elements put together and related to each other consists of hierarchy, arrangement, and geometry. As highlighted above, hierarchy in the Achaemenid gardens depicted the respect and humility of the king towards the gardens as the metaphor of Paradise by locating the pavilion to a lower level than the planted areas. The arrangement of the garden's components in the rectangular or square enclosure was based on a geometry about axes in which the land was divided into four sections. This ordered geometry was created as to meet the requirements for water distribution order for irrigating the plants and trees in

patches. A pavilion, with the main catchment pool underneath, was central to the injunction of this modular arrangement.

Element - including pavilion, water, wall and pathways - as another key comparison factor in the *chahar bagh* concept, play a crucial role for those studying the evolution of this idea after the arrival of Islam. Stronache's description of the c*hahar bagh's* layout in Pasargadae based on the archaeological evidence of stone channels in the site represented a typical pattern of royal garden in which wall, water channels, pools, pathways, fruit and shade trees and central pavilions were considered as the main elements (Turner quoted from Stronache 2005: 104-106). *Wall* as an element represented the garden as an enclosure, as well as offering privacy *Water* as both a functional and an embellishing element has been represented in different pools and streams within the Pasargadae gardens.

Plantation as an element has been considered separately due to the importance it has for the garden. The pleasant sense of the place in the pre-Islamic gardens of Persia has been provided by planting different type of trees including olive trees, mulberries, and date palms. The variety of plants and trees shows the size and the extent of the king's empire in this particular garden space. *Sense of place* can be described as the people's subjective perception of the environment in which form, function and meaning of the environment, combined, play the main role.

Although the earlier gardens existed in Nineveh in the eighth century and even earlier in Mesopotamia, the ethology of "Paradise "derived from the famous word of "Pairi-daeza" gave an emphasis in Achaemenid Persia as the initial place for the advent of *chahar bagh*. David Stronache who was the excavator of the orchards of Cyrus at Pasargadae described its pattern as one of the oldest and most unique layouts of the classical *chahar bagh* (Turner 2005: 104-106). Persepolis, Susa and other sites of Persian palaces continued this garden development. The persistence of the tradition of Persian gardens could be seen much later when the Persian culture brought the Persian garden to the Mediterranean world through Sicily and Spain. The archetypal Persian garden was transmitted throughout the world following the spread of Islam from Arabia to Persia, further east to India, west to Turkey, and north to Africa and Spain. Quranic Paradise in its mundane form is undoubtedly a delineation of Persian gardens. Although the hanging gardens of Babylon may have influenced the gardens of ancient Persia, unfortunately there is not enough evidence for the studying of these gardens.

Transmission of Persian Gardens in The Islamic World

5.1-Introduction

5.2- Persian Gardens of Early Islamic Period (Middle East)

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Chapter 5: Transmission of Persian Gardens in The Islamic World

5.1- Introduction

While the Sassanid ruled the Persia, nomadic tribes from Saudi Arabia began to attack neighbouring lands including Persia. They were united by the religion of Islam and started building the Islamic Empire in the conquered regions. Although the Persian Empire was encouraged to embrace Islam, other religious denominations were not persecuted (Gothein 1966: 27-41).This means that Zoroastrianism survived under Arab rule, slightly weakened yet very much intact. Tracing the Arab's nomadic culture in Iran is not straightforward; however, finding the influence of Islam is. Despite the strength and influence of the new religion of Islam which entered the Persian lands, the language, culture, and secular administration remained intact. It is important to keep in mind that Persia eventually became a Muslim country, not an Arabic one, which means despite of suffering extremely hard after the land was invaded by Arabs, the culture of the land never perished completely and arts such as garden design made progress and influence the art of garden making during the Islamic times (ibid). Marie-Luise Gothein in the *A History of Garden Art* quoted:

> The most surprising thing is that such storms only raged above the tops of the mountains, and the regions that were sheltered and beyond their reach could continue to flourish, so that the "home" arts made progress—as Ibn Chaldun reports in the fourteenth century (Gothein 1966:160).

The progress of the idea of Persian gardens as a "home art" which survived after the Arab's attack, was apparent in later medieval gardens such as the Zisa garden in Palermo[26] in Sicily dating back to the twelfth century, the Moorish gardens of Al-Andalus in Granada, the gardens of Alhambra built under the Nasrid Dynasty, and the Generalife gardens known as Jannat Al-Arif, means "Architect's Garden" (Ruggles 2011: 13-27).

With the aim of tracing the influence of Persian gardens on the gardens of Islamic time, both inside and outside of Iran, this chapter first investigates gardens of the Middle East, including Syria, Jordan, and Iraq, and continues with the Gardens of

[26] Palermo was the Gennai al-ard (derived from the Arabic term of Jnnat al arz), which means the earthen Paradise (Ruggles 2011).

Islam in the west including Spain, Sicily and the Maghreb. A historical analysis of the gardens according to the key elements established in chapter four – garden origins - will inform us of the continuity of and changes to such elements in the evolution of garden design over time by different cultures under different geographical situations, which led to the eventual layout of Chahar Bagh Avenue in Isfahan.

5.2- Persian gardens of the Early Islamic Period (Middle East)

Following the advent of the Arab Muslims -who had no tradition of gardens of their own- into Sassanid capitals, they were confronted by the lush green gardens that Iranians had maintained for at least a thousand years. Thus, the practice of the Persian garden was employed in Islamic landscaping. Some examples of these existed in mostly permanent settlements located in some areas far from the urban centres, such as Khirbat al Mafjar in 745CE, Ukhaidir in 780 and Samarra in 836 (Turner 2005: 81-107), which took advantage of existing water sources. Unfortunately, there is no evidence of garden layout in the surviving sites. Islamic civilization imposed dramatic changes to the landscape design of the area by transforming the parched lands into green oases by employing the techniques of irrigation originally devised by the Persians.

Summarising the areas conquered by the Muslim armies following the conquest of Syria, and led by Umayyad in 661-750 (early eighth century), Islamic territory began to extend from Syria westwards into northern Africa – to Morocco, and the Iberian Peninsula, and eastwards through Iran to central Asia. Therefore, analysing the gardens of these regions is the key point of interest of this study. Arabs built their palaces on the conquered lands based on ancient and existing knowledge of architecture. Their architecture drew from an eclectic mixture of motifs drawn from many traditions – from the Romans to the Persian dynasty of the Sassanids (Ruggles 2011: 13-27). Each Umayyad family member built their residence as a place of cultural refinement decorated by small gardens which offered pleasure. These gardens were established by the elements[27] of water, plantation and building as integral aspects of the expression of power and dignity (Almagro and Ruggles 2000:

[27] The grouping of such elements occurred in residences of a more or less private character and also soon became a feature in urban palaces, as demonstrated in the case of Chahar Bagh Avenue of Isfahan.

1-3). The mutual aspect of plantation in the gardens of Achaemenid and those of Umayyad was an emphasis on the element of plantation as a representative of the King's power over controlling the land and extending the empire[28].

Getting back to the creation of gardens in the arid land of the Middle East, the major problem to deal with was lack of water. Thus, even a small amount of rainfall needed to be collected and stored during the wet seasons and distributed to the land through a managed irrigation network. The irrigation system had been previously designed by the Persians. Arabs took advantage of and extended the existing water organisation instead of building new hydraulic systems. The skills of the Persians in obtaining and using water improved the Islamic domestic agricultural economy and led to the creation of some islands of greenery, such as, Jabal, built between 707 and 715, Qasr al-Hayr-West, built for Prince Hesham under the Umayyad between 700 and 730, Rusafa built between 724 and743, Khirbart al-Mafjar around 739 to 745 by the Umayyad al Walid II in Syria, in the heart of the desert. They were fertile and beautiful oases, relying on the collection and manipulation of water for their survival (Ruggles 2011: 39-49).

Discovered by archaeologists, the garden of Rusafa (known as Sergiopolis[29]) in Syria possibly belonged to the reign of the Umayyad (a state for Caliph Al Hisham's palace). The excavation of the area in the late 1980s unveiled a magnificent garden enclosed by a mud brick wall and a central square pavilion at the intersection of two walkways. The pavilion was surrounded by arcade, including an opening on each side from which three steps connected the pavilion to the garden (Figure 48). On the west side of the palace was a slightly elevated walkway. There also may have existed similar walkways to the other three sides, which simulated the earliest *chahar bagh* plan pattern (Ruggles 2011: 178).

The pavilion sat at an elevated position, offering a spectacular view of the four cardinal directions and the whole area, which eventually became a metaphor in Islamic palaces, embodying an expression of sovereign power. If the dating for this

[28] Refer to notes in chapter four, section "Water and plantation in Pasargadaer", where Dr Maria Maria Brosius in her description of the Pasargadae plantation highlighted the purpose of Cyrus in importing various types of seedling… "He imported them from all over his empire to reflect the size and the extent of his empire in this particular garden space."

[29] Segripolis was a byzantine settlement, located to the east of Aleppo in a desert landscape. The city of Rusafa flourished thereafter as a small settlement, populated by both Christian and Muslim communities before Mongols invaded the area in the thirteenth century (Almagro and Ruggles 2000: 1-3).

garden is accurate, it was the earliest Islamic landscape example in Syria identifiable as a pleasure garden consisting of the earliest known Islamic example of the pavilion at the intersection of the four axes. In other words, it may be assumed that Rusafa played the role of Pasargadae for Syria, because it introduced the quadripartite layout of classical gardens into this area (Ruggles 2011: 39-49)[30].

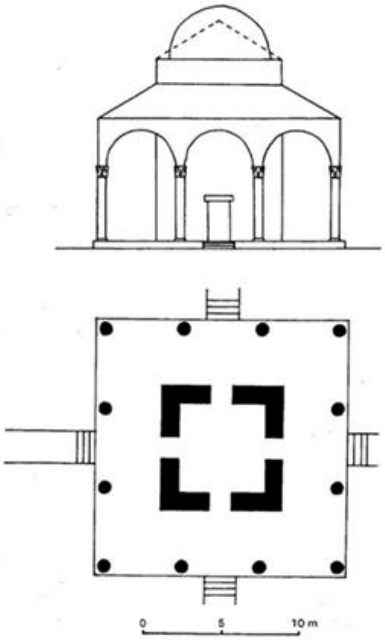

Figure 48: The Umayyad garden in Rusafa, Syria, is an early example (eighth century) of a cross-axial design (Kuilman 2013)

Considering the evolutionary timeline of the gardens in the Middle East, Khirbat al-Mafjar was an unfinished enclosure consisting of a massive courtyard, handsome bathhouse, Mosque, and large roofed fountain built in Jericho, a city near the Jordan River, built between 739 and 745. Water flowed from a nearby spring and was stored in a tank placed on the ground 24.5 metres higher than the palace, within a 700 metre distance from it. The first purpose of water was to irrigate crops which were supposed to be sent to the cities for trade; the second purpose was to provide a pleasurable environment through different forms of fountains and ponds and immersion pools in the bathhouse to cool the place down as well as adorn the courtyards for people to enjoy their surroundings and relax. As Figure 49 shows,

[30] When Prince Abd al- Rahman I escaped from Syria to Al-Andalus in the mid-eighth century, he built a garden in Cordoba and named it Rusafa in memory of his grandfather's desert palace where he spent part of his youth.

unlike Rusafa , the plan of the Khirbat al-Mafjar did not follow a formal classical garden design, but was a great verdant oasis in the middle of the desert (Ruggles 2011: 13-27).

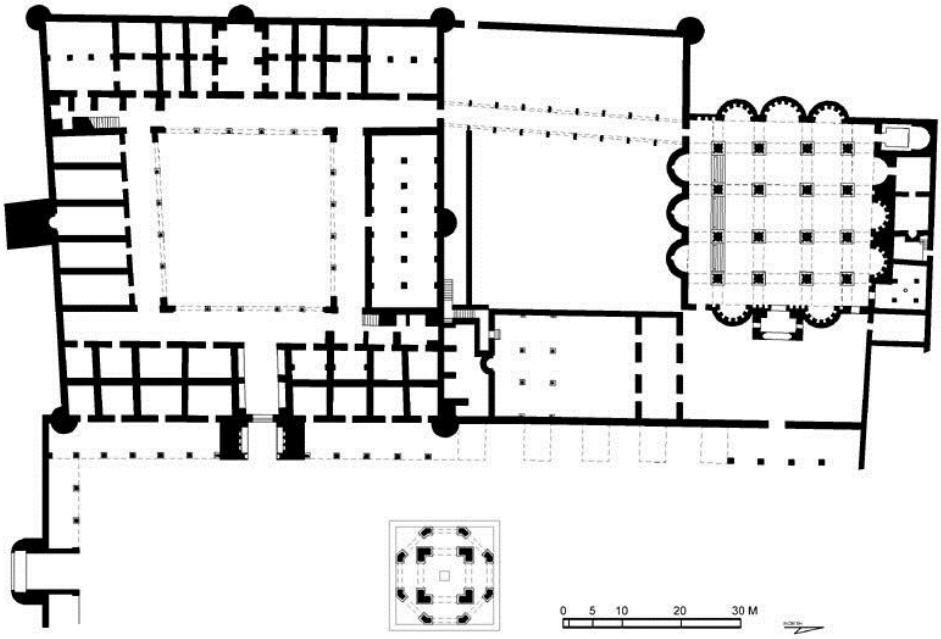

Figure 49: Floor Plan of Khirbat al-Mafjar (Archnet after Saeed Arida 2003)

Explaining the gardens of Syria highlights the Umayyad fixed set of forms which began to develop in designing the gardens, where water was the main feature of garden symbolism. Umayyad prominently displayed water in fountains and bathhouses; nevertheless, the garden full of trees, foliage and flowers, which required water for irrigation, evidences the existence of water. The best example of water manipulation in terms of collection and display can be found in the green belt that surrounded Cordoba in al-Andalus, ruled by the Umayyad dynasty between 756 and 1031 (Ruggles 2011: 18). Most of the farms in Cordoba were owned by Umayyad princes and high-ranking court officials. Madinat al–Zahra was the grandest of the summer capital city built beginning from 936 CE, and destroyed by fire in 1010 (Ruggles 2011: 13-27).

The next dynasty that showed more interest in designing the palace garden was the Abbasid, the successor of the Umayyad. Example of their design can be found in the Abbasid palaces of Dar al-Khalifa built around 836, and Balkuwara built between

849 and859 in Samarra of Iraq. Ruggles (2011: 26) gives the following account of the Dar al- Khalifaa palace in his book, *Islamic gardens and landscapes*:

> The palace site was approached by the Tigris River from one end while reached by land at the other end. The river side's facades of palaces included elevated halls and pavilions. Cultivated gardens traversed by water channels and pools were covered the space between the river and the building, providing an aesthetic experience of the landscape. The interior courtyards with fountains spraying water offer a refreshment in Iraq's blistering heat.

The second of the palatine gardens is offered by the archaeological evidence in Balkuwara, which has been considered as one of the very early Muslim examples of the *chahar bagh* garden, consisting of three large courtyards (Figure 50).

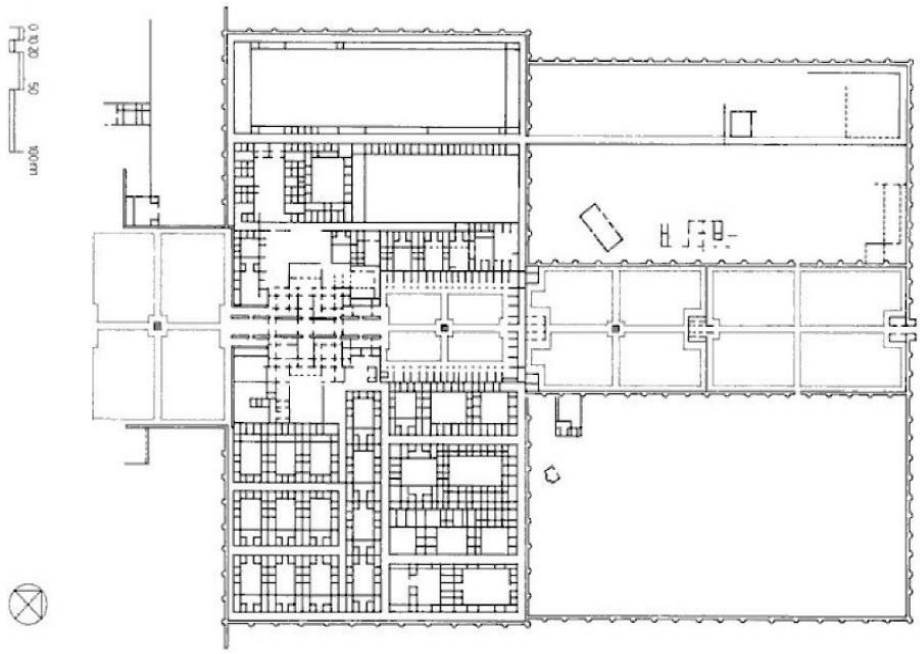

Figure 50: Plan of Balkuwara palace at Samarra, showing the Chahar Bagh gardens, which are among, the earliest examples of Islamic Chahar Bagh (Lehrman 1980: 199)

Although each of those gardens appeared to have been divided into four equal quarters by two axial walkways and water courses in the plan of Ernst Herzfeld, it has not been ascertained that the layout expresses the *chahar bagh* garden as Ernst's plan of Bulkwara is partly conjectural (Ruggles 2011: 39-48). Figure 50 shows Ernst's plan of Bulkwara, which depicts the strong axis running through the large complex in which courtyards followed the *chahar bagh* concept.

5.3- Islamic gardens of Europe (Spain, Sicily) including Morocco in North Africa

The Persian model of gardens with the four-part harmonic division, fountains and reflecting pools continued to be used in landscape designing of other countries with different cultures (Jacobs 2000 quoted in Hunt 2011: 15-112). Following the transfer of Islam from Syria towards the west, the art of Islamic garden design has influenced the gardens of Europe. Arabs invaded Spain for the first time in 710 CE and ruled many of the countries at that time. Granada was the only Moorish[31] Kingdom surviving from 1248, where the Christians made fierce efforts towards the eradication of Islamic beliefs and Arabic learning. However, aspects of the Arabic culture including the art of gardening (given to them by the Persians after they invaded Persia in the seventh century) survived (Hunt 2011: 15-112). In his book, *The History of Gardens,* Christopher Thacker (1979: 36) pointed to the garden of Hair al- Zajjali as one of the gardens of Granada in Spain in which

> … the courtyard has been covered by pure white marble, cut off with a stream, wriggling like a snake. All waters fall into a basin. Gold and blue colors are dominant in decoration of the roof, sides and other parts of the pavilion. Symmetrically aligned trees and flowers filled the garden and the foliage of the garden provides shading for the ground. The breeze, blowing day and night over the garden, is loaded with scents. (Thacker 1979: 36)

Considering the literary depiction by Thacker of the garden of Granada (built in the eleventh century), it is easy to understand that the garden is clearly an ordered enclosure in which trees and flowers are planted in regular blocks. Where he mentions the stream "wriggling like a snake", he possibly means the stream curving down from one level to another level, highlighting the different levels incorporated into the design of the garden, which led to the creation of little water falls. In Sicily[32] , one of the mediaeval wonders was the Palazzo Normanni, and Palermo was praised by Arab geographer Muhammad al-Idrisi (*c*. 1099-1166) who travelled from Ceuta

[31] Patrick Hunt believes that the Moors incorporated the Persian garden in their landscape planning, which ultimately became a European garden design during the medieval epoch. From the fifteenth to the seventeenth centuries, Safavid Persia and the Mughal Empire continued the tradition of Chahar Bagh with the use of pools, trees, and scented flowering plants (Hunt 2011: 2-16).

[32] In Sicily, two types of garden developed as part of the Fatimid influence: 1) intramuros "gardens of delight" called riyâd, which were connected with palaces; and 2) extramuros gardens âgda, which were used as game reserves (for hunting) and as orchards (Ruggles 2011).

in Spain to York (Britain), and from Turkey to Florence, as well as across North Africa (Hunt 2011).

5.3.1- Muslim Spain

Clearly the Arabs continued the garden tradition between 651 and 1300 before the Timurids conquered Iran. This section discusses the Muslim cross-axial gardens in the different climatic conditions of the West. Spain was invaded by the Muslims following the landing of the Berber tribesmen from North Africa. This western outpost of Islam was under Umayyad rule until the Abbasid seized power in Damascus in Syria. Muslim Spain was known as al-Andalus – Cordoba became the capital, with Toledo and Seville, and later, Granada as the major cities for art and culture. Proud of their Arab origins, the Umayyad made al-Andalus a realm in which Persian and then Turkish art and cultural influence became predominant. The Persian irrigation system (qanat) was still in use when the Arabs arrived in 711 CE (Brooks 1987: 37-38).

Ruggles (2011) believes that the practical level of the *chahar bagh* plan was adopted for palatine gardens as it provided a crucial means of irrigation. In such a system, as has already been analysed in the Pasargadae garden of the Achaemenid, water was introduced from a single source (qanat) and distributed through a network of canals which directed water into the soil; for a few hours, water passed through muddy or tile-lined canals which were excavated by opening some entrance points and blocking others with mud and stones.

As already discussed, under Islam, the *chahar bagh* garden prototype was first employed at the palatine gardens at Rusafa, in Syria. The Syrian Rasafa garden was the model for a subsequent garden palace of the same name (Rusafa) built by Abd-Al Rahman in an area on the outside of Cordoba in the second half of the eighth century. As previously explained, the Syrian Rusafa was a cross-axially-planned garden with a central square pavilion (Ruggles 2011: 178). Although it has been said that Rusafa's architecture might have been an inspiration for the building of the palaces with gardens around Cordoba in the same period, it is not provable, as there is no excavation evidence regarding the cross-axial layout in Cordoban Rusafa, nor in any other garden in Cordoba before Madinat al Zahra, dating back to the tenth century (Brooks 1987: 37-38).

According to Ruggles (2000: 42-45), there were three remarkable features in the construction of Cordoban Rusafa, including its location away from the city, its emphasis on nature through its gardens planted with very exotic and rare plants which were introduced into Spain by Abd-Al Rahman, such as date palms and pomegranates, which later became the emblems of Granada (Brooks 1987: 40), and the last feature was that Rusafa complemented the Alcazar as a Royal residence. Ibn Said (1990) quoted in Ruggles (2000: 44) noted:

> Rusafa was built as a site mainly for recreation, but as Abd Al Rahman loved it very much, he left the Alcazar, where a large portion of government existed to live in Rusafa for most of the rest of his life.

The next Chahar Bagh garden to be considered in Spain is in the Andalusian palace city of Madinat al- Zahra[33] (936-1010), located approximately five kilometres from the capital city of Cordoba. A double-walled garden complex designed in three large stepped terraces began in 936 (Figure 51). Caliph and his family lived in the third terrace at the top of the complex. The richly ornamented reception hall was reconstructed by the late 1950s and dubbed the Salon Rico. Figure 52 illustrates the reception in which three naves on columns bear horseshoe arches and open out to a large *chahar bagh* garden via a transverse hall. The garden was divided into four quarters by axial walkways.

A pavilion mirroring the Salon Rico at a reduced scale was located along the central walkway. Between the pavilion and the Salon was a large pool, deep enough to have held fish. From each pavilion, the reflection of the other was obvious from the shimmering surface of the front pool, a feature which was "architecturally illusionistic and utterly real" (Ruggles 2011: 46). The most important early secular garden in the chronology of gardens after the Pasargadae of Persia is Madinat al Zahra with its surrounding gardens. Water is the central theme for such gardens and is explored as pool, pond, or basin, and with or without fountain. Flows of water running from the pool divide the garden into four quarters which later on became the concept of typical Moorish layout which was inspired by the famous Persian ideal Chahar Bagh on a smaller and more intimate scale (Brooks 1987: 41-44). Water for Madinat al Zahra was supplied from the mountains to the northwest of the palace,

[33] The "Zahra "means flower in Arabic; the literal meaning of *Madinat al Zahra* is the city of flowers (from Islamic names meaning available in http://quranicnames.com/zahra/) .

through a branch of an aqueduct 18.6 kilometres long, which had been built during the Roman times. Previously, the qanat was the only system to provide huge amounts of water for an irrigation system over long distances. Ruggles describes the qanat as:

> A subterranean tunnel that carries water from the water supply in an elevated level such as mountain to a lower level in a more than 30 kilometre distance. Qanats were employed during Achaemenid in ancient Persia (sixth to forth BCE). These Qanats were in use during Islamic periods. The technology of Qanat spread to Syria, the Arabian Peninsula, and India by Muslims. The Romans carried it across North Africa and it had been given to Sicily and Iberian Peninsula by Muslims. (Ruggles 2011: 21)

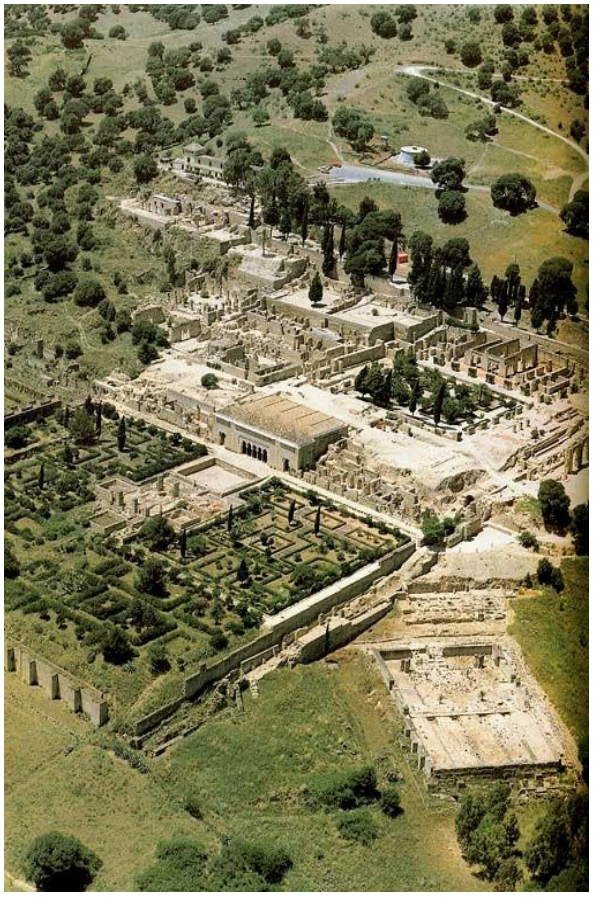

Figure 51: Spain, Madinat al-Zahra, Alcazar, Aerial view
(Media Centre for Art History, Columbia University)

The Madinat al Zahra complex used to be a summer residence for the Umayyad; however, within a century the caliphate ended and the complex was sacked by the Berbers. Destruction and looting of the area continued for centuries. The site was then used as a place to walk in by the Cordovans and is partially restored (Lehrman

1980: 92). Analysing the chorological order of garden evolution during the Islamic time, there are at least five quadripartite gardens built in the twelfth century in Spain and Morocco, among which four have been excavated and three of the excavated ones are still visible in Alcazar of Seville (Ruggles 2011: 39-49).

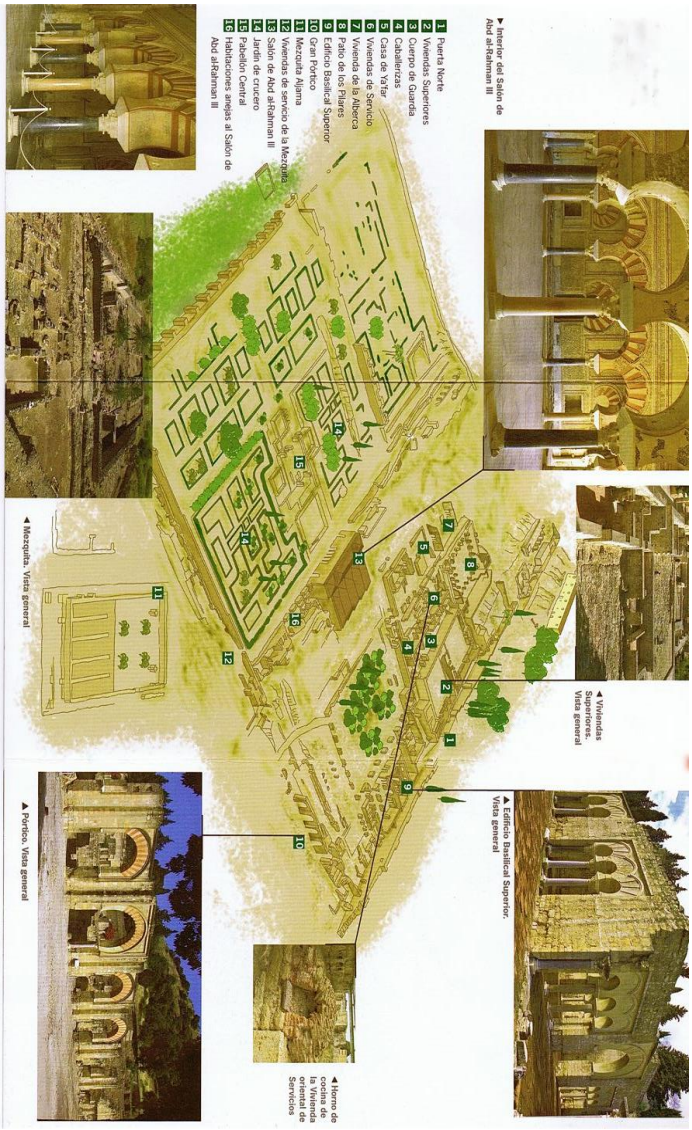

Figure 52: Madinat al-Zahra general plan of the Andalucia shows three naves on columns bear horseshoe arches (Ferreira: 2012)

Although the surviving gardens of Alcazar date back to the eleventh through the fourteenth century, the original Islamic palace was built in Seville in the tenth century: the Casa de Contratacion (Figure 53) attached to the former Islamic Palace which represents the twelfth-century fabric (still in excellent condition). Plants of the garden are still irrigated by water canals running along the elevated walkways

(representing the irrigation system provided through the geometry under Achaemenid epoch in Pasargadae, Persia). Archaeological survey has demonstrated that the square beds were planted with jasmine and orange trees (Ruggles 2011: 46). Another twelfth-century Alcazar's garden, named El Crucero (because of its cruciform plan). like Casa de Contratacion (Figure 54), it had four quadrants sunken to a five-metres-depth, also planted with orange trees. The third garden of the same period was The Patio del Yeso (Figure 55), which included a square courtyard[34] and a central rectangular pool lined by low bushes and ornamented with columns at the south wall (Brooks 1987: 44-46).

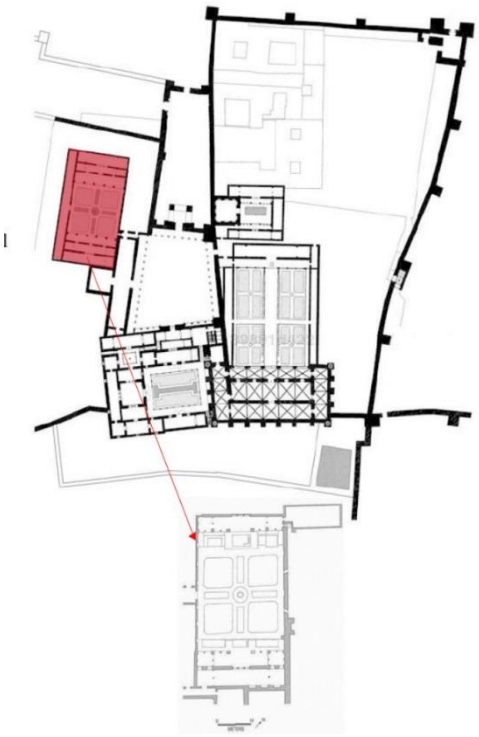

Figure 53: Top; Alcazar of Seville, showing the dominant layout of Chahar Bagh in the whole area, bottom; Plan of Casa de Contratacion (Ruggles 2011: 157)

[34] The courtyard garden is another layout for palace gardens which appeared in Spain. The best example of which could be found in eastern Spain between 1147 and 1172 is Castillejo of Moteagudo in Monteagudo, five kilometres northeast of the city of Murcia. The surviving foundation shows that the palace was built around a courtyard divided into four quarters by walkways and water channels (Ruggles 2011: 39-49). The plan of the Castillejo at Moteagudo shows the residence (61m by 38m) surrounded the central courtyard (33m by 18m). The courtyard in its geometry followed the Persian Chahar Bagh layout. Each of the courtyard's segmentation was sunken 1.4 metres below the pavement level. Similar to the lion courtyard of Alhambra, the pools stood at the intersection of axial walkways as well as on either side of the courtyard where they were capped by main kiosks. An extra support for the foundation had been provided by a buttressed solid wall 14 metres to the west side of the garden, four to five metres below the garden level. Water reached the level of the garden by means of a device which raised it from a stream or river known as Noria and consisted of a chain of pots or buckets revolving around a wheel driven by the water current. The only remains of this masterpiece are its foundations which were excavated in 1924-25 (Ruggles 2011: 156).

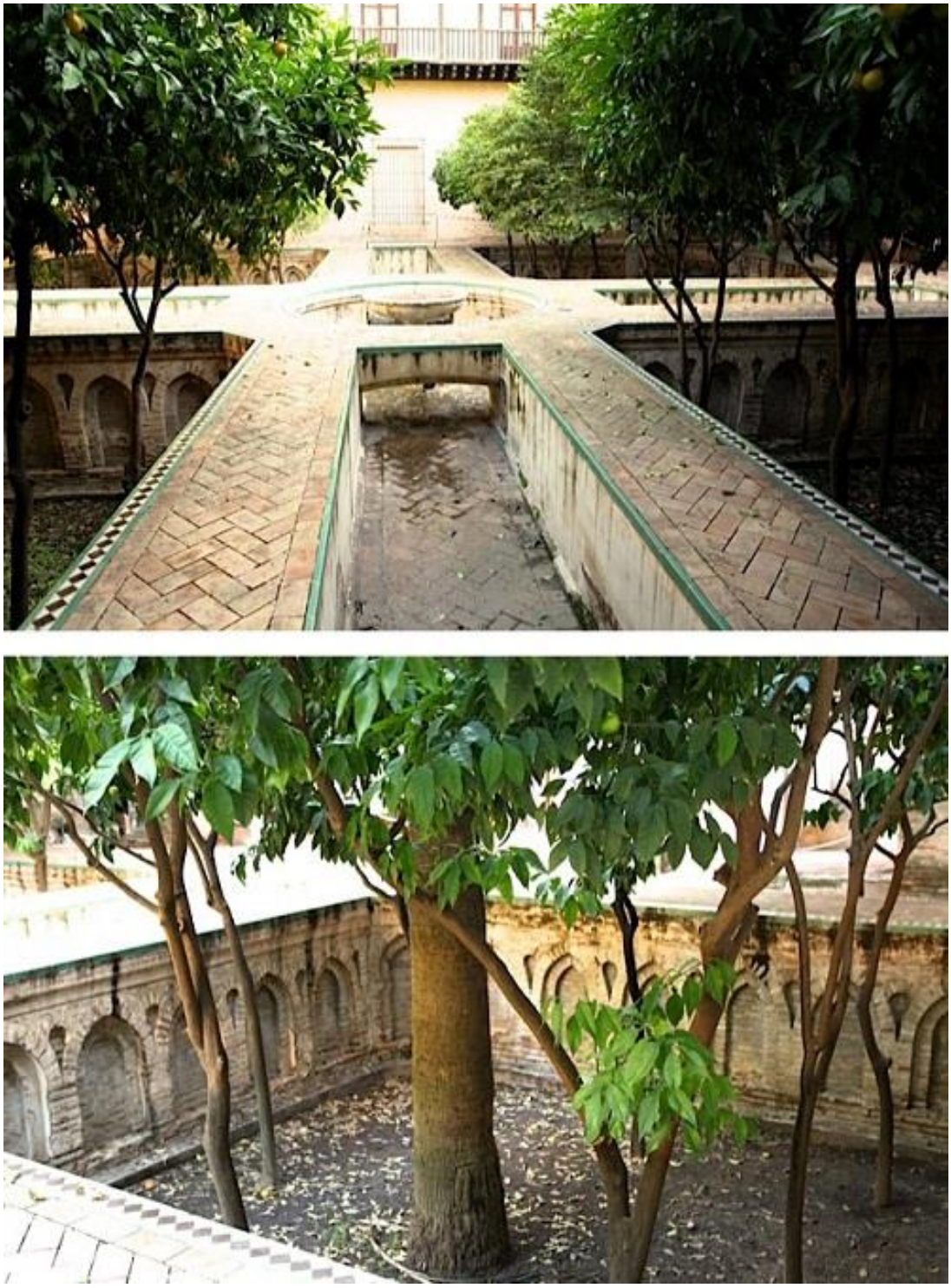

Figure 54: Garden of the Casa de contratación de Sevilla shows sunken patches planted by orange trees and the central pool (Ferreira: 2013)

Figure 55: The garden of El Patio de Yesco (VIERNE 2009)

The Alhambra Palace is the most crucial example of Islamic-Spanish gardens built under the Nasrid Dynasty (1230 to 1492). The main courtyard and the court of lion fountains consisted of four garden beds, surrounded by paved walkways. Figure 56 shows the Court of Lions and the Court of Myrtles. The Court of Lion includes an elegant basin, resting on the back of 12 stone lions, and placed at the intersection of the walkways. The Court of Lions has one of the oldest symmetrical *chahar bagh* layouts that existed during the Islamic period while the Court of Myrtles embodies a perfect representation of water within the Islamic gardens of Spain through a huge stream of water. Alhambra is an interesting example of water and building combination (Brooks 1987: 44-46).

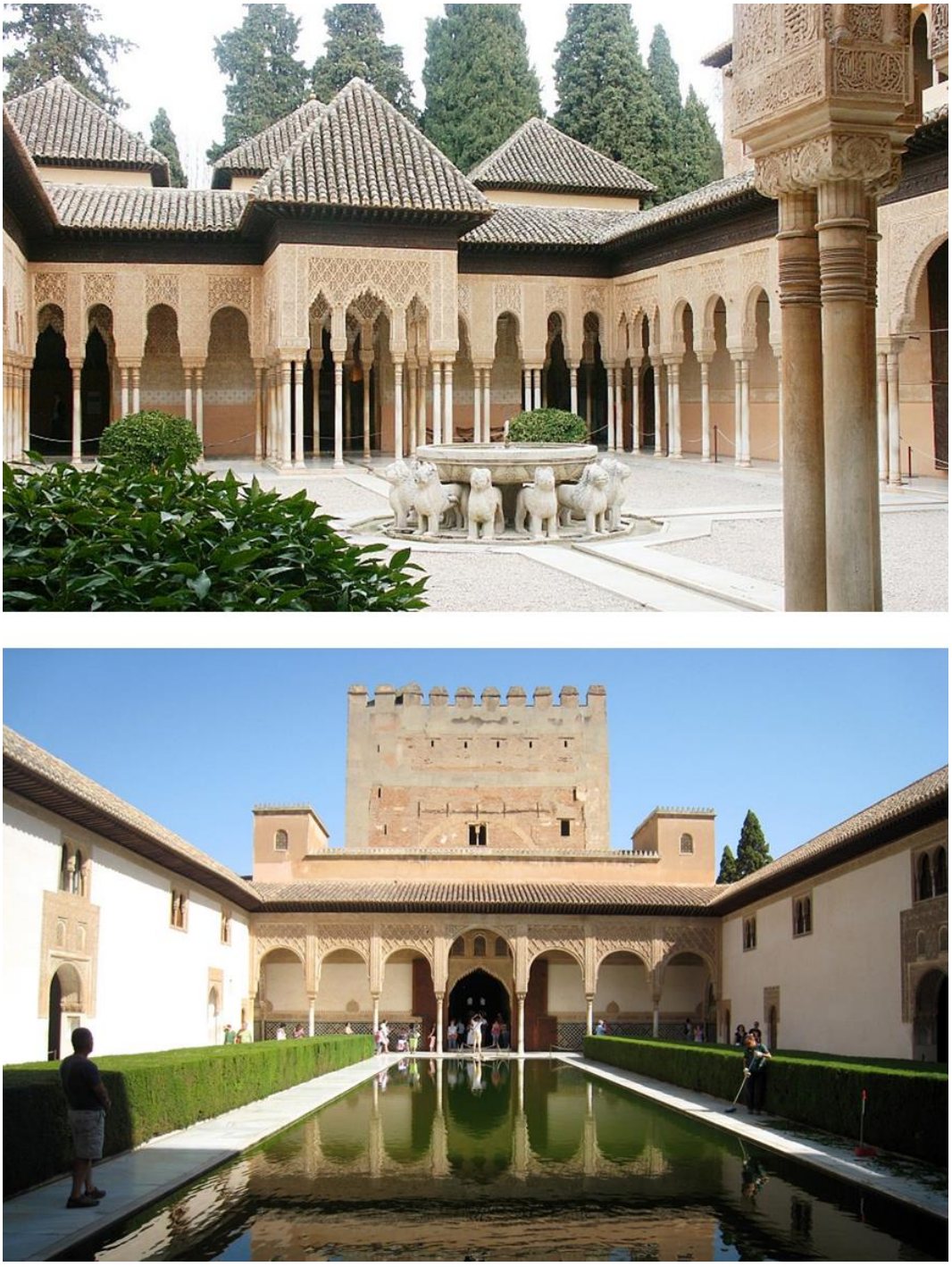

Figure 56: Top; Court of Lions, Alhambra, Spain (Comakut 2003), bottom; View of Court of the Myrtles (Photo by Hawke Shane in hawkebackpacking: 2007)

Outside the walls of Alhambra are the Generalife gardens where ornamental gardens and architecture were integrated. Figure 57 shows how - from the Generalife, which was built on the hill - Alhambra was approached across a bridge, through a cypress walk (Brooks 1987: 44-46).

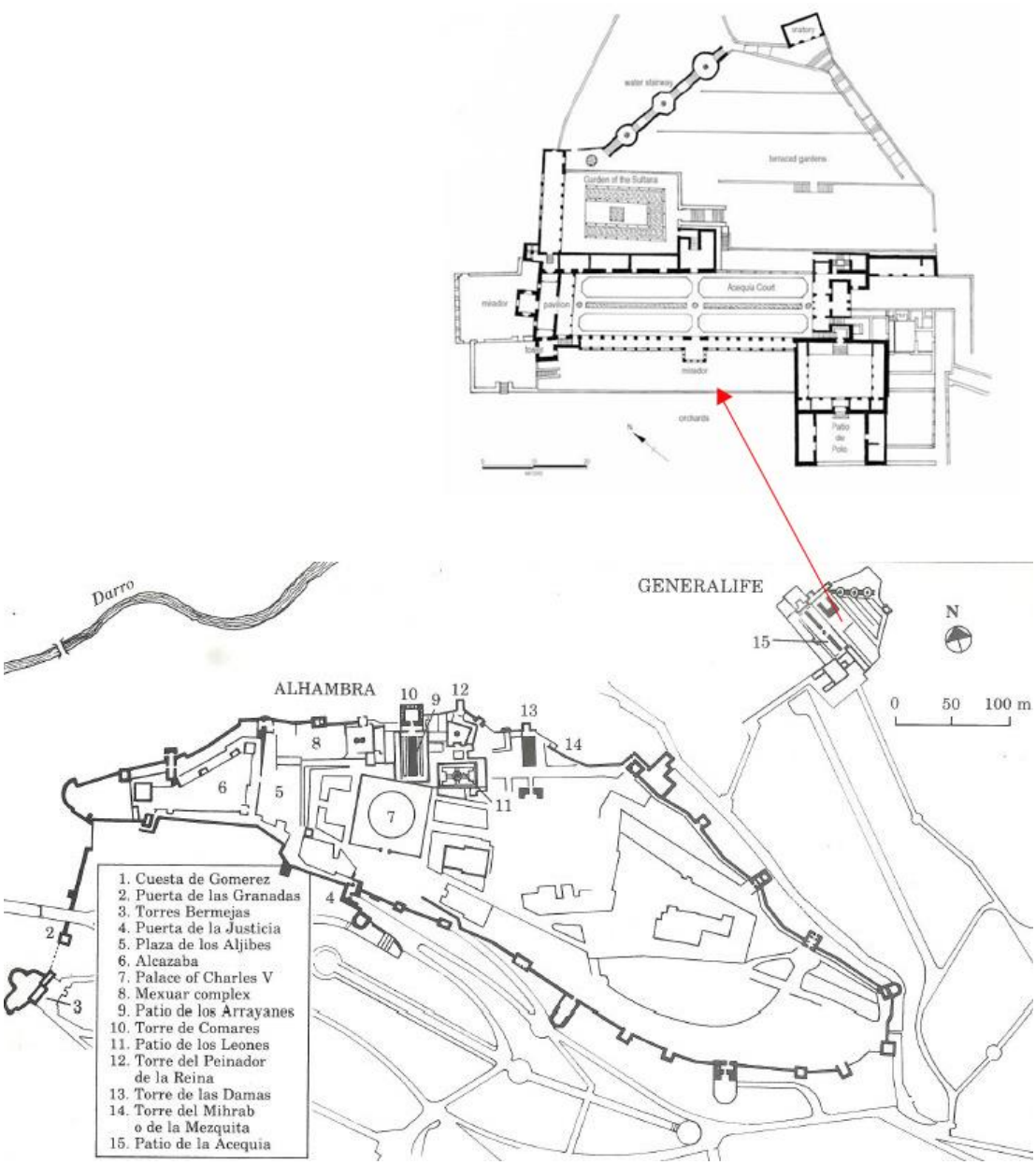

Figure 57: Top: Generalife garden, bottom: relative position of Alhambra and Generalife gardens in Granada (Brooks 1987: 49)

Planting on both sides appears at a first glance. Reinforcing the perspective, fountains play from the sides toward the centre. On closer examination, a small Mosque at the one end of a cross axis can be seen (Figure 58). The plan for the garden was that of a quartered garden or, it would be better to say, that of a Persian *chahar bagh* which became the master plan for the design of gardens by Babur in Agra and, after that, was applied in the Isfahan Chahar Bagh by Shah Abbas. A feature which repeated itself again and again in Alhambra and here in Generalife is

the presence of water fountains set within a carved lotus basin which must have oriental origins since the lotus does not grow in southern Spain (Brooks 1987: 48-54). Chronologically, some parts of Generalife were built before Alhambra. Figure 59 shows the Alhambra complex, which is broadly a building with open spaces; however, it is more compact in plan compared to Generalife, which is a series of gardens punctuated with pavilions.

The gardens of Spain adhered to the model of the Islamic garden not only by symbolism, but also by climate with maximum emphasis on water. The strictly geometrically laid out garden was often below the level of the paths for the purpose of irrigation (Lehrman 1980: 87-92). The landscaping and gardening undertaken by the Umayyad caliphate during the eighth century to the south of Spain was the sign of civilization and cultural elements emanating from ancient Iran. In fact, the four-part garden layout plan within the palatine gardens was certainly not confined to Persia but adopted by this dynasty in Syria and Spain such as Rusafa and Madinat al-Zahra and to express their power through a series of enclosed orchards organised in an ordered geometry which has been seen in the previous example of Persia in Pasargadae and Persepolis (Brooks 1987: 48-54).

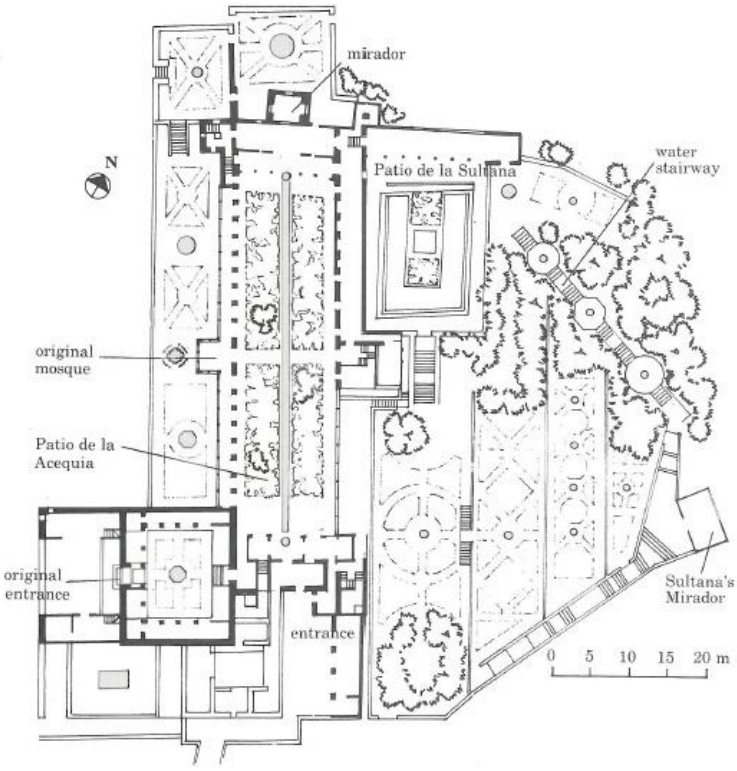

Figure 58: Generalife plan of Granada: laid out on six levels it was restored by Sultan Ismail in 1319 (Brooks 1987: 49)

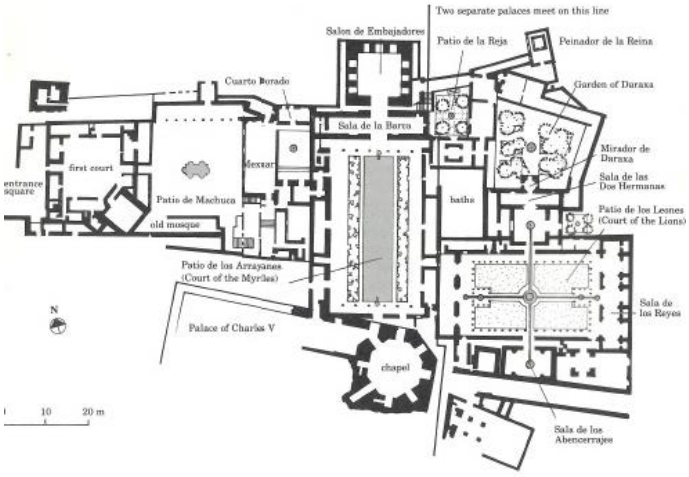

Figure 59: Plan of the Alhambra, being broadly a building interspersed with open spaces (Brooks 1987: 54)

5.3.2- Sicily

During the long development of the gardens of Islam, important influences spread from Islam first to Sicily, which influenced the gardens of Italy in turn, then to Spain and al-Andalus and later on to the African mainland which was influenced by Spain. The style of architecture, following that, of landscaping in North Africa, is similar to the Syrian and Mediterranean one (Brooks 1987: 162).

In highlighting the influence of Islam in Sicily's gardens, the author herein analyses the garden of Favara Palace in Palermo, Italy, dating back to the early eleventh century (1130-54). Favara palace was built for an Arab governor and renovated to serve as the first suburban pleasure estate of the Norman king Roger II. The name of the palace was taken from the Arabic word of Fawwara which means fountain jet. Although the garden was part of the residence of a Christian king, the Mediterranean Islamic taste for the symbiosis between architecture and landscape could be seen reflected in the garden's name. Formerly the garden of Favara consisted of different structures surrounded by an artificial lake used for fishing. Water, which was a plentiful feature in Sicily, was brought to this garden from the mountains of the west (Brooks 1987: 162-166).

Figure 60 illustrates another example of the Sicilian garden palace, the Zisa palace, taken from the Arabic word of Al-Aziza – "noble" - built in 1166 and renovated in 1636. Consisting of double-storey rectangular structures, the Zisa palace stood in front of a massive pool in a large garden.

Figure 60: Zisa palace in Italy, Taken on April 22, 2012 by Di Modica Vito (https://www.flickr.com/photos/supervito/7592225132/in/photostream/)

Figure 61 shows the emphasis of the architect in representing water as the main feature in the design of the sumptuous hall, where water poured from a niche in the wall, flowing down a marble *salsabil* - chute - into a channel that traversed the floor opposite the hall entry. The setting and inhabitant of the palace had been described in an inscription over the entry by Norwich (1992):

> Here, as oft as thou shalt wish, shalt thou see the loveliest possession of this kingdom, the most splendid of the world and of the seas. The mountains, their peaks flushed with the colour of narcissus....This is the earthly paradise that opens to the view; this palace the 'Aziz (Norwich quoted in Ruggles 2011: 159).

Figure 61: Niche with fountain in the main hall, Zisa Palace take on April 22, 2012 by Di Modica Vito (https://www.flickr.com/photos/supervito/7586185774)

5.3.3- Morocco

Expansion of Islam outside of the Arabian Peninsula, extended from Syria westwards across northern Africa to Morocco and the Iberian Peninsula, and eastwards through Iran to central Asia. The earliest cross-axial garden in North Africa, known as the Kutubiya, was built in Morocco between 1106 and 1142. The palace consisted of a courtyard surrounded by elevated walkways. The palace was destroyed between 1147 and 1162 following the construction of a mosque. The former palace included a courtyard, 10.5 metres long, divided into small quadripartite beds of vegetation irrigated by water channels and divided by walkways, and surrounded by elevated walkways (Ruggles 2011: 47).

Three further examples of Islamic gardens in Morocco are here presented: Agdal Basin and Gardens in Marrakesh built between 1130 and 1269, Chella necropolis outside of Rabat created between 1310 and 1334, and Al-Badi Palace in Marrakech built in 1578 and destroyed in 1710[35].

As an example of a Moroccan garden, I chose the Al- Badi Palace here, which literally means "marvellous". Its designer's intent has been expressed in an Arabic calligraphy above one of the main gates; "this gate is as beautiful as the eloquent beginning of a fine poem, and the palace is as the continuation of this poem (Stein 2007: 154).

[35] Agdal Basin and Gardens, which extends south from Al-Badi Palace, consisted of a vast area enclosed by a nine-kilometre-wall to the outskirts of the city urban space, which is expressed by the term 'Adgal'. Each of the gardens was planted with difference species, amongst which those with orange groves were closer to the large basins as they required a lot of water in a desert climate. Notably orange trees are not naturally enduring in such a climate. Looking at the Agdal gardens, the aesthetics of agricultural production and recreation is evident in the platform that appears to float like an island in the centre of Kharsia Basin. The restoration of this garden by Abd –Al Rahman, which was part of a bigger restoration campaign, dates back to the eighteenth century. He replanted the Agdal as a park of citrus and olive trees (Ruggles 2011: 162).
Chella necropolis built between 1310 and 1334 served as a cemetery for the Merinid rulers of Morocco. The entrance to the complex was provided through a gate to the western corner of the site. Ruggles (2011: 164-166) indicates that the irregular five-sided enclosure was entered through a gate. The complex slopes from here past ancient ruins and Merinid graves until one reaches a rectangular enclosure containing the tomb, a Zawiya and two mosques, of which one of them is named Abu Yusuf Y'aqub.
The courtyard of the Abu Yusuf Y'aqub mosque built between 1258 and 1286 served as an antechamber for the whole complex, consisted in a Minaret to the southwest and lead to a Zawyia in its northeast. Zawyia consisted of a tiled minaret, latrines, and a courtyard with a deep rectangular pool in its centre and two scalloped marble basins at either end. This courtyard was formerly surrounded by an arcade of marble columns. The enclosed area of gravestones is located in the south part of this courtyard, where the tomb of Queen Shams- al Dawla is found. The cemetery area is located in the south part of this area. Residential cells on two stories lined the wall behind the Zawyia (Ruggles 2011: 164-165). An examination of the remaining walkways by Lévi-Provençal proposed that this area was gardened.

A huge courtyard, divided into four sunken gardens by the means of walkways, constituted the main area of the Al- Badi palace. Figure 62 shows the plan of Al-Badi palace in which a central enormous pool, running down the main axis, contains a square platform reached by walkways. Both sides of the walkway were dominated by domed pavilions including sheltered basins. This courtyard was similar to the Court of Lions at Alhambra, which might be a stylistic reference made by Andalusian Muslim architects who fled to Morocco after 1492. Each pavilion was flanked by two smaller rectangular pools. By creating three doors to the three outer walls of the kiosks a shimmering view of the water was provided from each kiosk. The depth of pools is approximately one metre while the depth of the sunken gardens is two and a half metres. From Figure 62 it is clear that the depth of the gardens was such that the tops of the trees and flowering shrubs just reached the level of paved pathways (Ruggles 2011: 161-164).

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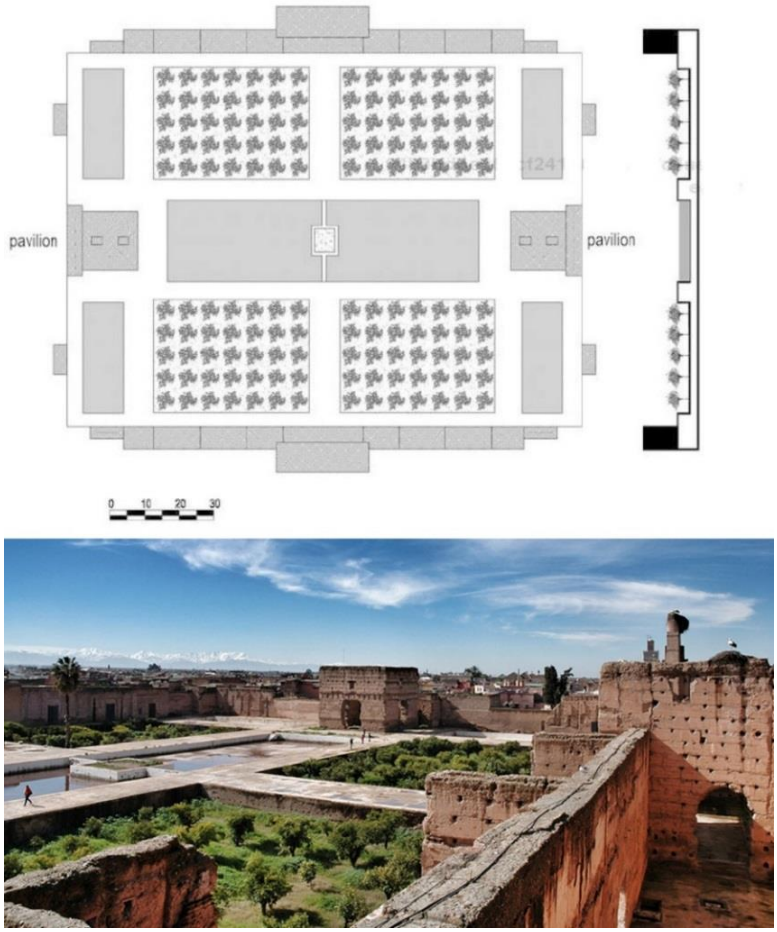

Figure 62: Top; the plan of Al- badi palace (Ruggles 2011: 163), Bottom; current situation of the place taken on March 27th 2013 by Carolyn Eaton (https://c1.staticflickr.com/9/8511/8594909080_9725f65a2f_b.jpg, 12/01/2015)

Courtyard gardens in Morocco followed the structure of palace gardens of Spain, but to a compressed scale. Each element of the Moroccan garden contributed to a sense of peace and tranquillity. The red walls provided a sense of privacy for the garden by separating the inner space of the garden from the outside world as well as stability through the shiny green carpet formed by orange trees and water pools. The singular display of water in Moroccan courtyards and palace gardens offered a feeling of relaxation by the sound of water. "Movement and sparkle were added to the static environment of gardens through the glistening of the water flow within the basins" (Stein 2007: 154).

Analysing the structure of all given examples of Islamic gardens clearly depicts the main concept of the Achaemenid and Sassanid garden ideas in the gardens of Islamic time after 651CE. The knowledge of irrigation taken from the Persian gardens played a crucial role in transforming an inhospitable earth into a green stunning landscape, particularly in Syria. The Four Quarters of *chahar bagh* gardens was a powerful symbol of Persian style domination in Islamic world. This legacy started from Syria, under Umayyad and transferred to Spain and Morocco through subsequent Muslim dynasties.

The four quartered gardens in the palatine gardens served as a metaphor for the political and economic realm as well as the organisation of the landscape during Umayyad when ruling Syria and later on when the Hispano-Umayyad ruled the Iberian Peninsula. The landowner sat at the centre of the garden or overlooked its main axis and looked across the garden, supervising the cultivated field. The productive field enriched both farmers and landowners, while at the same time providing tax revenues to construct more palaces adorned with multiple gardens

5.4- Conclusion

A comparative analysis of the gardens after the seventh century, following the expansion of Islam by Arabs around the world, shows the existing tradition of garden design in each area blended with a new religious symbolism. The analysis of the Islamic gardens of the Middle East and West can highlight the fact that whether rural or urban, gardens are an integral part of human habitation, a necessity for all not a luxury for a privileged few. Crucial factors in the layout of *chahar bagh* garden, established in Chapter 4, were all involved in the evolution of gardens under Islam.

Order - including hierarchy, arrangement, and geometry - explained some of the differences in the gardens of the Islamic time. Similar to the gardens of ancient Persia, the arrangement of the garden components was mostly in a rectangular enclosure, according to a cross-axial geometry with a great emphasis on the focal centre, represented by a central element such as a basin. In terms of hierarchy, unlike the Pasargadae garden in which the location of the pavilion was at a lower level compared to the planted areas, the gardens of the Islamic time such as Khirbart al-Mafjar and Dar al- Khalifaa introduced the elevated pavilion at the intersection of the main axes. This feature, which became a metaphor of sovereign power in Islamic garden, provided a spectacular view of the four cardinal directions and the whole area.

A close scrutiny of the *chahar bagh* layout in Islamic gardens of Syria, Spain, Italy and Morocco shows the deep influence of Persian gardening culture in the geometry and arrangement of such landscapes. As Paradise in the Quran is described as a garden with four gardens and four streams, it might be true to say that this influenced the Muslim architects to highlight the Chahar Bagh in their designs. Analysing the given examples shows that although the Chahar Bagh pattern structured large-scale gardens, the basic grid network of the Ancient Persian layout could be still realised in small courtyards or where the separation between flower beds and patches was required (Ruggles 2011: 73-79).

A quotation by Ruggles (2011: 39) highlighted the Chahar Bagh pattern as an inseparable hallmark in the definition of the classic Islamic formal garden (Ruggles 2011: 131): "Islamic garden is the four-part garden laid out with axial walkways that intersect in the garden centre". However, the innovation in such gardens was designing the Chahar Bagh pattern on the stepped terraces, originated from the gardens of Madinat Alzahra dating back to 936 CE are famous for.

Pavilion, water, wall and pathways were continued as garden elements in the construction of Islamic landscapes. The pavilion central to the surrounding gardens was designed for an elevated view of the garden (Ruggles 2011: 42). All the given examples of Syria, Spain, Sicily and Morocco were enclosed by walls and structured by elevated walkways (pathways); the latter were a distinctive feature of elements in Islamic gardens. The elevated walkways in Syrian Rusafa, Casa de Contratacion of Alcazar in Spain, and Moroccan Al-Badi led to the creation of sunken gardens which were irrigated by water channels along the pathways. Water channels and pools were

representing the element of water in the mentioned gardens. Emphasis on the aesthetic aspect of the water introduced the water jet fountains to the gardens of Islamic time. The fountain jet as a decorative use of water which had not existed in the gardens of the Achaemenid times was represented in the gardens of Alhambra. This Islamic feature depicted the Mediterranean Islamic taste for the symbiosis between architecture and landscape. Water as the central theme for such gardens was explored in the form of pool, pond, or basin, and with or without fountain.

Plantation as the key feature in landscaping contributed to the creation of an enjoyable space within the gardens of the Islamic time. The sunken quadrant-planted gardens and flower beds as the organising principle of the palatine gardens (Ruggles 2011: 43) were planted with many trees including evergreens such as cedar and sour, orange and olive trees, as well as Jasmin flowers, whose leaves barely reached the surface of the elevated walkways. The cultivation of trees and flowers was not only because of their appearance, but also for the pleasing perfume of blossoms and the taste of fruits.

The most significant feature of Islamic gardens was emphasize on representing of the water elements such as pond, pools, and fountains as well as plantation in order to highlight the paradisiacal image of gardens.. Marco Polo, who travelled through Persia, explained about the Paradise wherein he carried his disciples:

> The Paradise is an Islamic garden type we know. The chief had laid out a most handsome place between two hills, and in this valley grew the sweetest flowers and the costliest fruits that one can possibly imagine. There were pavilions and palaces of every size and shape on terraces set one above the other and adorned with gold, paintings, and silken stuffs. Within were many fountains of fresh, clear water, and here there were streams flowing with wine, milk, and honey (Turner 2014).

Although Muslims adopted the form of *chahar bagh* and widely explored it both inside and outside of Iran, the name of *chahar bagh* was never translated. *Chahar bagh* was borrowed from pre-Islamic Zoroastrian gardens, but was assimilated into Islamic theology as a representation of Quranic verses under the name of Paradise.

The intricate relationship between form and content, natural condition and human intentions can be seen in the gardens of the Islamic time. Furthermore, the nature of the spiritual experiences within the gardens has been explored.

The Paradise garden tradition continued mostly in central Asia and particularly in the Mughal gardens of India such as Humayun's Tomb (1570 AD), Shalimar Bagh in Lahore (1633 AD), Shalimar Bagh in Kashmir (1620 AD) and the main one, the Taj Mahal (1632 AD) (Turner 2005: 104-105). The next chapter discusses the Gardens of Islam in Central Asia. To summarise the history of the early Islamic Paradise garden both in the Middle East and West, the author provides the following comparison tables:

Table 1: The comparison table of Islamic gardens of Middle East and west

			Garden features			
			Geometry	**Plantation**	**Water**	**Building**
Islamic gardens (Middle East)	**Syria**	Qasr al Hayr (East and west) 700-730	- Square courtyard	- Olive trees	- underground canals - shallow lake - seasonal stream	- Semi-circular towers - Entrance gate - Mud brick
		Jabar 707-715	-	- Olive trees	- Qanat - Semicircular stone barrage - Seasonal stream (wadi)	- Mud brick wall - Bathhouse - Caravanserai
		Rusafa 724-730	-Rectangular central palace Chahar Bagh	-	-	- Mud brick wall - Elevated walkways -Central stone pavilion
		Kheibar al Mafjar 739-745	-Rectangular plan	-	- Roofed square fountain - Wadi	- Wall - Bathhouse - Mosque - Palace
	Iraq	Dar al Khalifat 836	- Square courtyard	-	- Large square pool -Water channel (originating in the pool) - Fountain	- Elevated pavilion - Wall
		Balkuwara 849-859	- Three squared semi Chahar Bagh courtyards	-	- Central basin - Fountains	- Wall - Paved walkways - Palace

			Garden features			
			Geometry	**Plantation**	**Water**	**Building**
Islamic gardens (West)	**Spain**	Madinat al zahra (Cordoba) 936-1010	Rectangular elevated gardens	Orange trees	- Fountain - Pond - Pool - Basin - Narrow channels	- Terraced central palace - Long central pavilion - Walkway - Wall
		Casa de Contratacion 12th	Rectangular sunken Chahar Bagh courtyard	- Jasmine flower beds - Orange trees	- Water channels - Central basin	- Surrounding palace - Axial walkways
		El Crucero 12th	Rectangular sunken Chahar Bagh	Orange trees	- Long central channel	- Palace - Surrounding walkways
		Patio del Yeso 12th	Square courtyard	Orange trees	Large central rectangular pool	Palace around the courtyard
		Castillejo of Moteagudo 12th	Rectangular sunken Chahar Bagh	Orange trees	Central pond	- Walkways - Kiosk
		Alhambra 1230-1492	Rectangular Chahar Bagh	Orange trees	- Ponds - Pools - Lion fountains - Streams	Palace around the courtyard

			Garden Features			
			Geometry	**Plantation**	**Water**	**Building**
Islamic Garden	**Sicily**	Favara Palace 1130-1154	-	-	- Artificial lake	- Palace - Chapel
		Ziza palace 1166	Rectangular structure	-	-	- Central palace
	Morocco	The Kutubiya. 1106-1142	- Courtyard Chahar Bagh garden	- Beds of vegetation	- Water channels	- Palace - Surrounding walkways - Axial walkways
		Agdal Basin and Gardens 1130-1269	Irregular	- Orange groves - Citrus trees - Olive trees	- Long basin	- Palace - Wall
		Chella necropolis 1310-1334	Irregular five sided	-	- Rectangular pool - Marble basin	- Wall - Palace - Mosques - Minaret - Royal tomb - Zawiya stories
		Al- Badi 1578-1710	Four sunken quarter courtyard	-	- Central pool - Water channel - Sheltered basins	- Wall - Gate - Palace - Walkways - Kiosks

Islamic gardens in Central Asia and India

6.1- Introduction

6.2-Timur's Quadripartite Gardens in Samarqand

6.2.1- The Semiology of The Timurid Gardens

6.3 - The Late 15th Century Chahar Bagh (Herat)

6.4 - Persian Gardens From Afghanistan to India

6.5- Timurid Gardens in India

6.5.1- Mughal Gardens of Agra

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6.6- The Paradisiacal Image in the Mughal Gardens

6.6.1- Shalimar Garden (Lahore)

6.6.2- Taj Mahal

6.7 -Conclusion

Chapter 6: Islamic Gardens in Central Asia and India

6.1- Introduction

The beginning of the Mongol conquest of the Islamic estates was marked by the mogul invasion of Iran from 1219 to 1221. When after Timur the Lame (Tamerlane) invaded the whole of Asia he chose Samarqand as his centre of power. The Timurid civilization brought together central Asia, North India, Persia, Mesopotamia, Syria and Asia in one single empire with the main capital in Samarqand and subsequently Herat and later on Babur's empire got influenced by it (Nattaj 2014: 6-9). Samarqand landscaping can be considered a specific style of gardening due to the following three key factors: inspiration from Persian gardens, Timur's lifestyle (living under the shade in a tent and enjoying a 360° view of the surroundings and sense of mastery over the four corners of the world (sitting in the main pavilion on a man-made mound with nobility to the four sides) (Nattaj 2014: 6). I believe that Timurid gardens introduced a number of innovative features into the art of landscape design, and may have led to the creation of different forms of formal garden, which in turn potentially had a major influence on the formation of later gardens of the Safavid in Chahar Bagh Avenue.

This chapter focuses on two similar typologies of garden design; the gardens of Samarqand and the gardens of Mughal in India. The gardens of Samarqand are here considered for two crucial reasons; firstly, they are very early gardens combining both Islamic and pre-Islamic features in their construction, and secondly, their role in the introduction of Persian gardens to the gardens of India, and consequently in generating the form and geometry of the Mughal gardens (Nattaj 2014: 6-9). Chronologically, the tradition of garden design in Timurid expression travelled south to produce the Perso-Islamic gardens in Iran and east to produce the Mughal gardens in India. The art of landscape design was transmitted to the Mughal gardens of India by Babur; therefore, the analysis of the Mughal gardens in India proposed in this chapter aims to investigate how these gardens were influenced by Persian and Timurid gardens.

Eastern nations including Mughals were extremely interested in art and beauty, not only for aesthetic reasons, but also for religious and symbolic reasons, both represented within the realm of art (discussed in Chapter 8). Although religion is

becoming less and less important in contemporary society, the religious aspects of Iranian gardens as a representation of Islamic art still play a crucial role in the nature of their design.

6.2- Timur's Quadripartite Gardens in Samarqand

Samarqand was located in the vicinity of vineyards and apple gardens. Unlike the hot and arid terrain of Iran, there was a large availability of water in Samarqand. Taking advantage of the Zarafshan River (Figure 63) to the north of the city, Timur created a number of gardens around the city and irrigated all suburbs by a considerable amount of water flow over water courses and runnels. Inspired by the Persian gardens of Pasargadae, Samarqand gardens were rectangular or square in their geometry and organised in the form of *chahar bagh* or on the basis of a longitudinal axis (Nattaj 2014: 6-9). The supremacy and power of Timur in control of his empire was represented through the location of the pavilion at the intersection of two main perpendicular axes. This continuation of geometric order from pre-Islamic gardens led to the introduction of Persian beliefs in cosmological elements to central Asia (Behbahnai & Khosravi 2012: 6-8).

In analysing the gardens of Samarqand, the following five Timurid gardens by Shaarf Al Din Ali Yazdi in *Zafar-nama* can be identified:

Bagh-I Bihisht (Paradise Garden): built to the west side of Samarqand in 1378, combining 12 existing gardens into one with a lofty pavilion in it. Notably there is no indication of where the pavilion was located [36] (number 8 in Figure 63)(ibid).

Bagh-I- Shimal (Gardens of the North): built to the north of Samarqand in 1397, where Timur set up his royal tent and ordered the construction of a palace in his garden. He called engineers from Iraq, Azerbaijan, Bagdad and other places to design the plans, and assigned the supervision of each of the four corners to his emirs. They built a solid foundation with four marble pillars brought from Tabriz located at each corner. Surfaces were decorated with lapis and gold while walls were revetted by glazed tiles both inside and outside. As for the Bagh-I Bihisht there is no information regarding the pavilion's location (number 6b in Figure 63) (ibid).

[36] The presence of a pavilion, instead of a palace, at the centre of the Timurid garden may attest to another modification in the layout of classical Persian gardens. This has attracted little attention among scholars in the subject of Persian landscapes.

Bagh-I Dilgusha (Heart's delight garden): built in 1396, this garden occupied a square area to the east side of Samarqand. One gate had a *moqarnas* vault placed at the middle of each side. Each corner had a tiled tower known as "dove towers" in Calcutta; in Golombek's (1995) description of the garden's plan it is mentioned that Timur divided the area into square walkways and rectangular or hexagonal planting beds.

Poplars were planted along the edges of the walkways and various trees bearing fruit and flowers were planted in triangular and hexagon-shaped plots along the walkway's borders. This kind of complex geometry was possibly new to Samarqand compared to the ordered and linear geometry used in previous gardens, and the pavilion located in the middle of the garden consisted of three vaults and a dome, following the pre-Timurid pattern (number 1 in Figure 63)(Golombek 1995: 137-147).

Bagh-I Naw (new garden): built to the south of the Bagh-I Shimal. Based on a layout drawn by Clavijo, the Spanish envoy to Timur, the construction of Bagh-I Naw with a cruci-form plan began before his arrival (number 7b in Figure 63). Although the central pavilion was present in this garden, some innovations were introduced to the Samarqand garden by the architects invited from Egypt and Syria. One of these new features could be found in the terraces stepping down one of the slopes north of the city, like in the later Timurid gardens found there and the pavements and fountains for which Mamluk[37] architecture is famous. The dominant feature in Syrian architecture is the use of marble and running water; therefore builders are extremely skilled in stone inlay and construction of running fountains (Golembek 1995: 139-147).

Bagh-I Dawlatabad (Garden of Good Fortune): Ruy Gonzáles de Clavijo (1403-06) in defining the gardens of Samarqand mentioned that this square-shaped fruit garden (number 2 in Figure 63) was surrounded by a 3.8-kilometre-wall incorporating four

[37] Mamluk architecture was a flowering of Islamic art during the reign of the Mamluks (1250–1517 AD) which is most visible in medieval Cairo. Understanding the aesthetics of Islamic gardens as the main representative of Islamic art in this study, there are two main specific historical developments that affected the gardens as the character of space at specific moments of time. The first one can be called centripetal or imperial. There is no difference in these developments if they issued from those of pre-Islamic empires like Achaemenid and Roman or from the Muslim notion of the caliphate, who was the shadow of God in on earth. Its signs are everywhere as well as in the architecture of palaces in a few examples of Baghdad and Cairo. The second one can be described as centrifugal and feudal. It is not easy to explain the difference between imperial and feudal themes: the short-lived Ilkhanid of Iran who did not manage to stay longer were more imperial, and the Mamluks of Egypt, whose feudal taste continued nearly two and half centuries (Grabar 2006: 341).

battlements at the corners. The *chahar bagh* Garden with a central stream terminated in a massive vineyard garden after passing through six huge ponds which stepped down six levels from the main pavilion's terrace (Golombek 2012). The description of Clavijo regarding the layout of the garden represents the relocation of Pavilion in Samarqand gardens which could be considered as the Timurid gardens innovation (Figure 64).

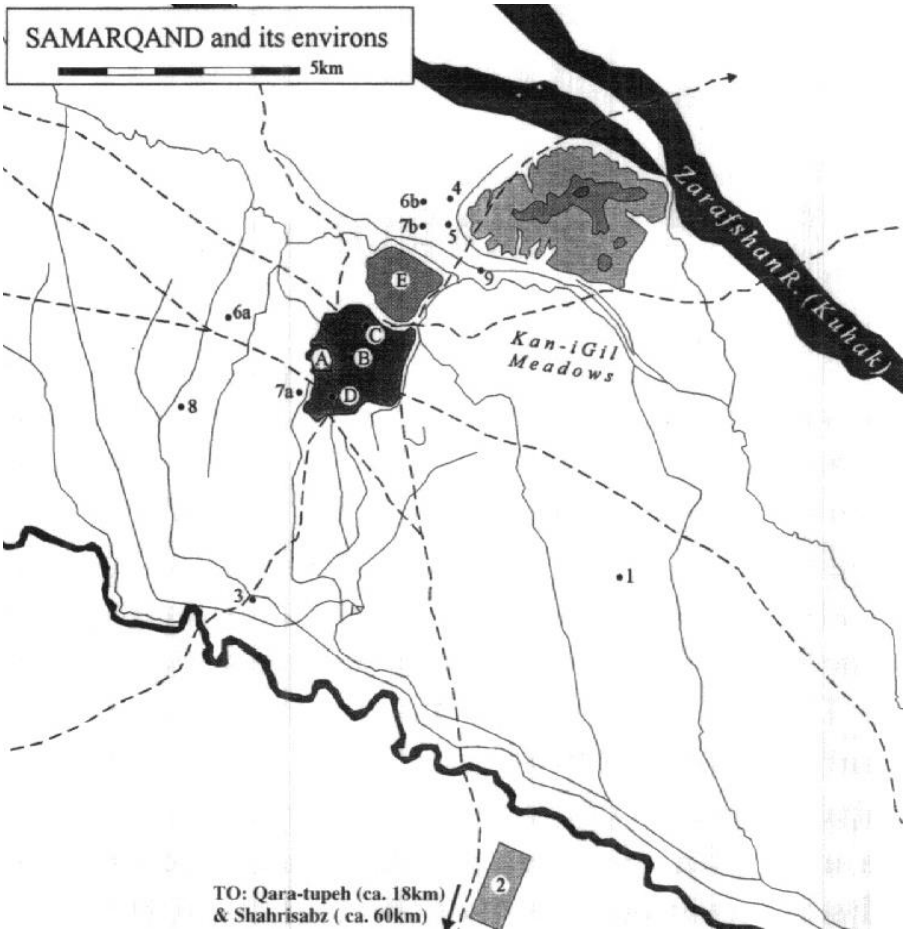

Figure 63: The Samarqand map of Timurid and Zarafshan River (Golombek 1995:38).

In the map, sites: A: Citadel, B:Registan, C: mosque of Timur known as "Bibi Khanum", D: Gur-I Amir, E: afrasiayb which was pre- Mugal town site. Gardens: 1: Dilgusha, 2: Dawlatabad, 3: Chanar, 4: Buland, 5: maydan/chini khane, 6b: Shimal' 7b: Naw, 8: Bihisht, 9: Naqsh-I Jahan.

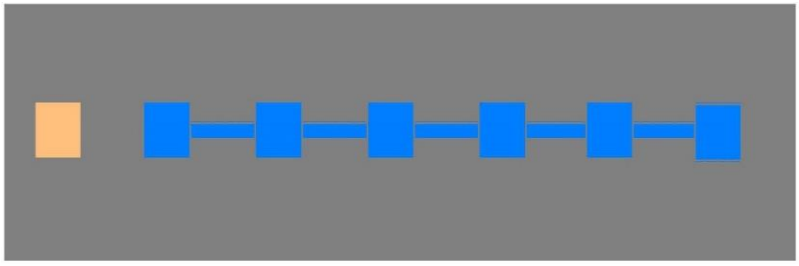

Figure 64: Graphical redrawing of the six ponds in Samarqand gardens of the pavilion (highlighted in orange) inBagh-I Dawlatabad, highlighting the relocation of pavilion in garden design from centre to the highest end of the garden (After Nattaj 2014: 7)

There is substantial textual and archaeological evidence from scholars which indicates that the garden with the centralised pavilion predominated during Timurid times (1370-1405). Although construction of the pavilion to the one end shaped the second layout for the classical garden and reached its climax during Timurid, the above brief description of five Timurid gardens in Samarqand by Shaarf Al Din Ali Yazdi in Zafar-nama (1957), shows that none of the gardens attributed to Timur ever followed the new layout of formal gardens with the pavilion to the far end except the Bagh-I Dawlatabad (Golombek 1995: 137-147). The reason for this could be related to the Timurid life style.

Timur was always on the move; therefore, no one can deny that he spent a great deal of his life on the road in tents and that the tents held a special meaning to Timurid society (Golombek 1995: 137-147). Tents were given to Timur as gifts along with Arabian horses, fine garments woven with gold thread, and other gold and bejewelled objects. In addition to the prestige tent held because of its importance to the nomadic lifestyle in terms of function and symbol, it was also part of the Timurid landscape as an artistic expression. The centrality of the tent in the life of Mongol society can be assumed as a reason for the positioning of pavilions at the centre of Timurid gardens. The nomadic lifestyle of Timur led to the creation of various gardens during his reign between 1370 and 1405 which were also represented by Shah Abbas through creation of the multiplicity of gardens along the Chahar Bagh Avenue during the sixteenth and seventeenth centuries (Golombek 1995: 137-147).

Although Timurid gardens are a combination of Perso-Islamic nomadic tradition and lifestyle, it was the sedentary tradition that ultimately triumphed. As the garden transformed into a place for important royal ceremonies through the positioning of richly decorated tents, these turned into palaces in the late Timurid gardens (Golombek 1995: 144-145). A number of innovations were applied to the gardens of Timur which can be found in new geometry, terraces, pavement, and fountains which came from Egypt, Iraq, Bagdad and Syria, and which were brought by architects who were invited by Timur to design and build his gardens. The art of lapis tile work by Persians in the decoration of the pavilion's interior and exterior is another innovation in Timurid gardens.

According to Golombek's (1995) reviews of the Timurid gardens, Timur built gardens on wedding occasions, thus, each of his wives would have her own garden. The Bagh-i Bihisht and Bagh-i Dilgusha were two such examples, which were built

for new brides. This depicted the feminine perspective, involved in construction of Timurid gardens. Although there is no surviving garden in the current era, many archaeological investigations suggest the presence of green belt created by Timur around Samarqand which was unique in the whole world. The inspiration of these gardens from Persian gardens is confirmed by the quadripartite spaces in the palace or by the seat located at their centre (Figure 65).

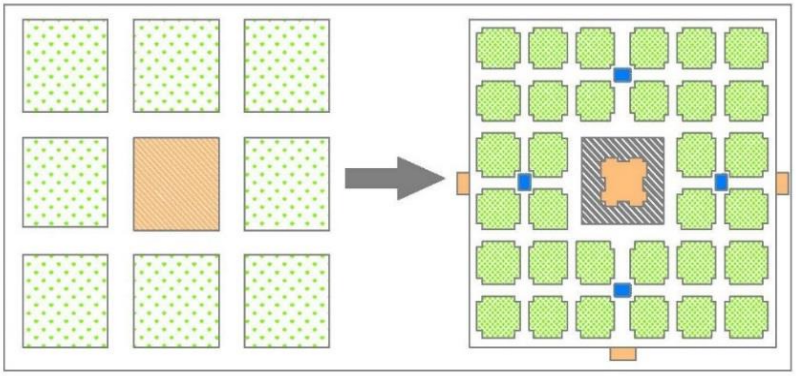

Figure 65: Graphical analysis redrawing of the location of main pavilion in Timurid gardens (Author 2014 after Nattaj 2014: 7)

The gardens of Samarqand which were designed based on the Persian garden's foundations and the Mongol nomadic cultural background, and according to the climate conditions of the area, played a considerable role in the development of gardening during the following epochs (Behbahnai & Khosravi 2012: 1-6).

6.3 - The Late Fifteenth-Century Chahar Bagh (Herat)

In contrast with what seems to be the garden plan in Timurid and Pre-Islamic times is the description of the formal gardens of *chahar bagh* by Qasim b. Yusuf, known as Heravi, in the agricultural manual of Ershad al-Zera'a, dating back to 1515. As it can be seen in figure 66, the structure of the *chahar bagh* is a walled area in which a watercourse lined with poplars and flowerbeds runs along the walls. The big pool in front of the main pavilion is watered by a main watercourse called *Shah juy*. Either side of the *Shah juy* is flanked by two walkways and after that the symmetrical patches of clover, followed by patches of lawn at a slightly elevated level. Various types of fruit trees is planted inside the green patches. Figure 67 shows the location of trees; pomegranate, quince, peach and nectarine, and pear trees. Nine beds of

flowers are after these, while apple trees to the south and fig trees to the north protect the area against the wind.

This description is based on the garden tradition in Herat under the later Timurid in the fifteenth century. Although many elements such as planting orders, geometry, water system including streams, ponds and fountains and wall are in accordance with the elements of the gardens of Samarqand, the significant difference lies in the location of the pavilion in the highest part of the garden to one end. This section has tried to highlight the initial period in transformation of Chahar Bagh layout during the Timurid time.

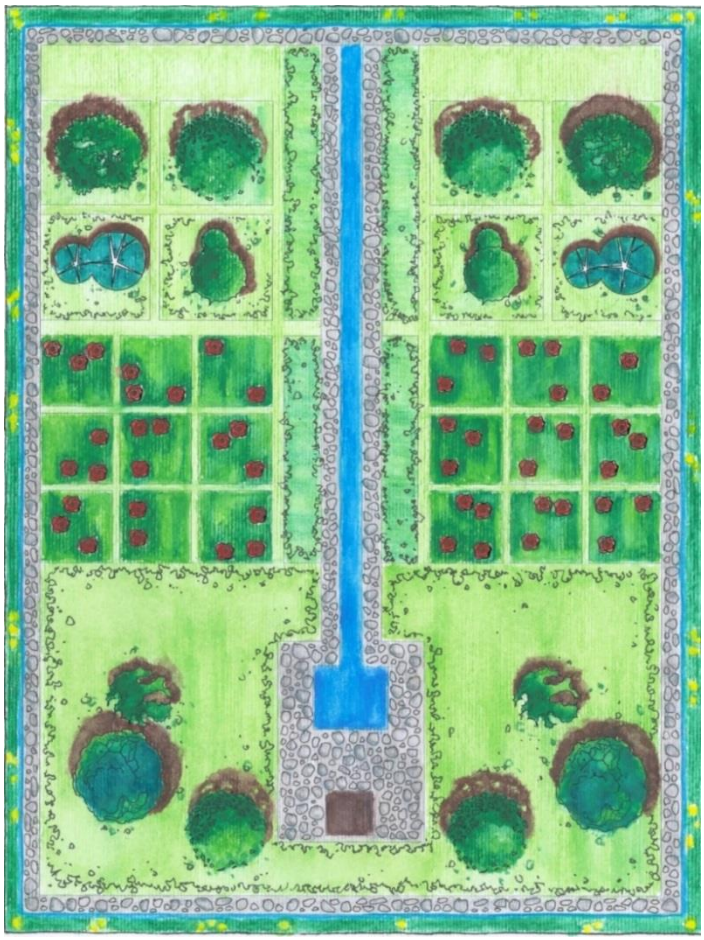

Figure 66: Redrawing of the layout of a Timurid *chahar bagh* according to the Ershad al-Zera'a by Qasem b. Yusof, Reconstruction by M. E. Subtelny; drawing by W. Moskaliuk, after Stud. Ir., 1995 (Water colour, by author 2014)

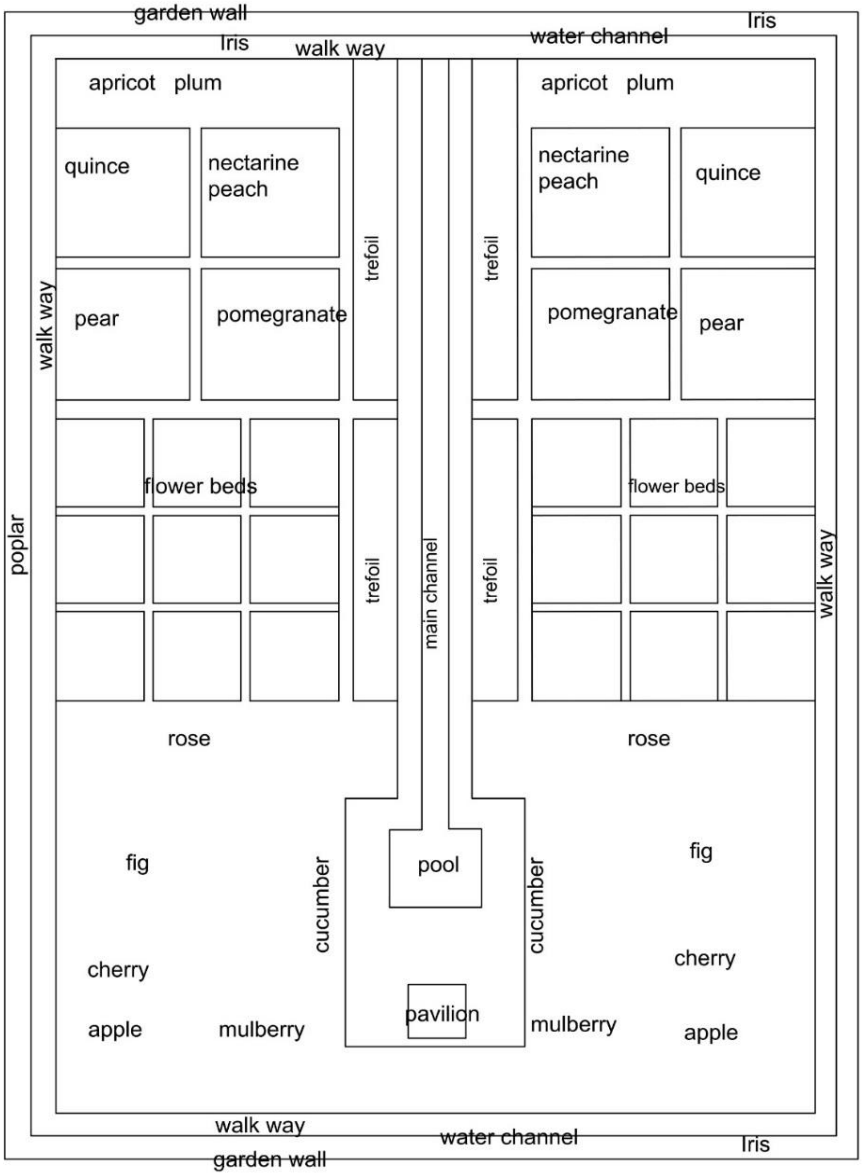

Figure 67: Redrawing of the typical layout of Timurid garden based on Ershad al-Zera'a (Author 2014)

6.4- Persian Gardens from Afghanistan to India

Timurid gardens (rooted in pre-Islamic Persian gardens) were introduced into India for the first time by Babur (1483-1530) who was the scion of the Tamerlane dynasty which ruled throughout eastern Iran and central Asia. Babur became the ruler of Samarqand at the age of twelve (Manning 2013). Babur's introduction of Persian gardens into India was based on his visualisation of the gardens of Timur in

Samarqand (Nattaj 2014: 6). He was very young when he entered Samarqand and was impressed by the beauty of Timur's city. Babur would go on to conquer and lose several kingdoms, gradually moving south to Afghanistan and then on to the Indian subcontinent. He started to create the *chahar bagh* Gardens in Kabul which key features were the main path, regular geometry, enclosed garden and terraced land (Figure 68, left). This type of garden design was extremely close to the definition of gardens by Heravi in Ershad al-Zera'a (Figure 68, right) (Manning 2013).

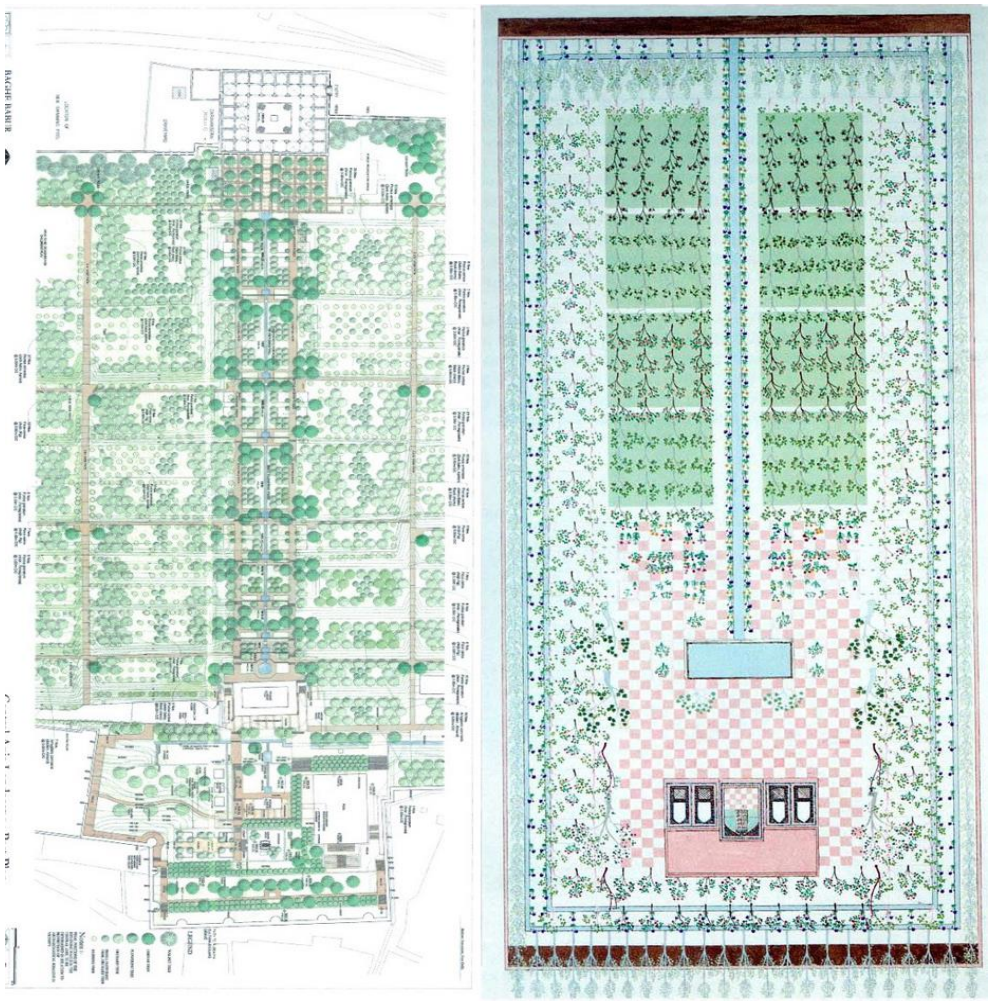

Figure 68: Left: Bagh-e Babur, central axes landscape plan by Agha Khan Historic Cities Association and Shaheer Association 2004 (Arch net 2014), right: graphical reconstruction of the Chahr Bagh according to Heravi by Alemi (ICHHTO 2002: 55)

Figure 69 shows one of Babur's gardens in Kabul - more specifically, the earliest surviving Mughal *chahar bagh* garden in Kabul. He was a very passionate gardener who personally designed and supervised at least 10 gardens in Kabul (Behbahnai & Khosravi 2012: 1-6). A miniature from the British Library illustrates Babur watching

men altering the course of the stream at Istalif (a village to the north west of Kabul) so that it could flow in a straight line (Figure 70).

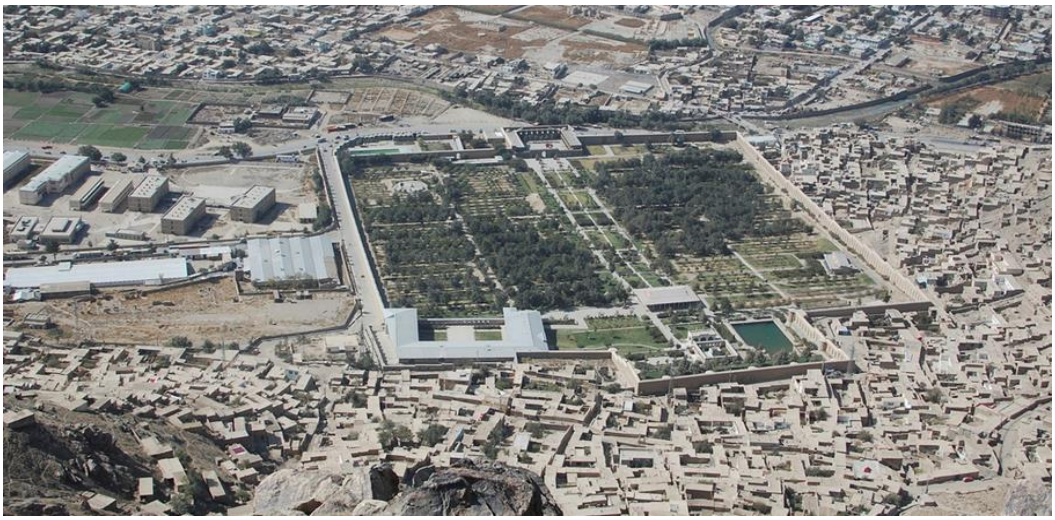

Figure 69: Birds' eye-view of Babur's Garden in present-day Kabul by Carl Montgomery 2008 (Flicker 2014)

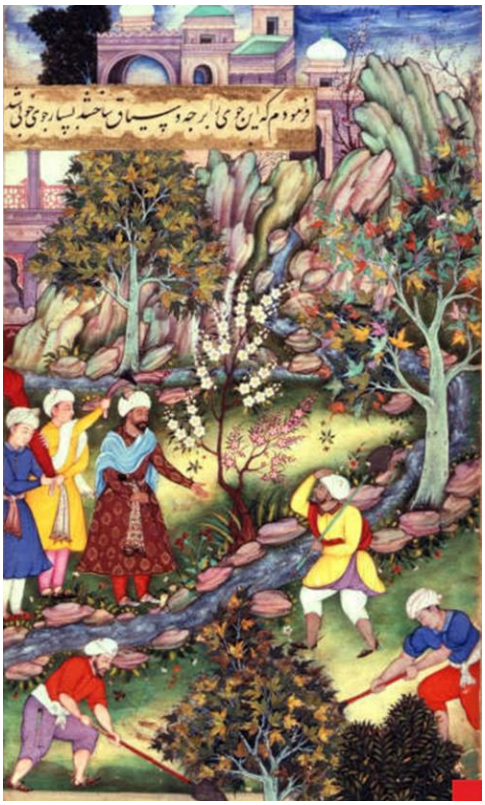

Figure 70: "one of the Chief defects of Hindustan is the want of artificial Water-courses" (Babur) (http://www.foliosociety.com/book/BAB/baburnama)

Interpretation of the Bagh-e Babur shows that the garden referred back to the Persian formal gardens in its layout. The Mongol dynasty boasted a series of garden makers who created various gardens in India. The archetype of Mughal gardens can be described as terraced gardens with symmetrical segmentation within which streams, ponds, access axes and the main palace are interconnected features. In other words,

two major features of landscape - the terraces and the central axes, where the waterworks still represented the main element of the Persian gardens - influenced the gardens of Babur. Bagh-e Babur belongs to the category of Islamic gardens which includes layers of meaning rooted in religious symbolism and includes conceptual, social and political aspects. Babur's interest in nomadic life encouraged him to live within a *chahar bagh* garden instead of a palace which would have had no connection to the natural environment (Nattaj 2014: 7).

The Mughal Gardens of India are crucial as they are the only gardens to have existed in the temporal interval between the gardens of Timur both in Samarqand and Herat and the gardens of Safavid in Isfahan, Iran (Nattaj 2014: 8). Thus, the second part of this chapter discusses Indian gardens following the influence of Islam in India which, I believe, were conceived with the paradisiacal imaginary world in mind.

Indian gardens were strongly influenced by Timurid gardens which in turn were heavily influenced by Persian Gardens. The most salient characteristic of such gardens were boundary wall, geometrical pattern, and cross-patterning of canals. The most famous Mughal Gardens discussed in the following section are the gardens of Agra, Ram Bagh (1526-30), Homayun's Tomb (1557), Sikri (1569), Shalimar garden in Lahore (1632-1642) and the famous garden of Taj Mahal built between 1632 and1654.

6.5- Timurid Gardens in India

Babur introduced the Persian garden pattern into India in Agra (Stuart 1913: 1-57). Two factors were involved in the advent of Persian gardens into the Hindu land; the first was Babur's involvement in garden-making as the founder of the Mughal Empire; he spent his young years in Samarqand gardens, which led him to create many gardens in different shapes based on the Samarqand pattern. The second factor was the migration of Heravi, the author of Ershad al-Zera'a, from Bukhara to India following the invitation of Babur in 1529, which transferred the art of landscape design (garden design) and the word of *chahar bagh* to India. Babur was born in 1494 in present Uzbekistan. His ancestor was Timur from his father's side and Changiz Khan from his mother's side. By 1512, Babur had the control of Samarqand's neighbourhoods. His attitude towards landscaping was deeply influenced by the time, though short, that he spent in Samarqand. Timur beautified

Samarqand with *chahar baghs*, mosques, *madrassas* (theological colleges), and tombs, and made this city one of the wonders of the fifteenth century. Babur, who was impressed by the gardens of Herat following his visit in 1507, employed the layout of terraced planted gardens with running streams which reflects the Hindu's love of nature. After the conquest of India in 1526, he declared himself *padshah* (emperor) of Hindustan and established Agra as his capital.

In both Kabul and India, Babur paid great attention to the creation of gardens (Asher 1991: 46-55). These gardens from Persian poetry were conceived with a paradisiacal imaginary world in mind. Asher (1991: 47) believes that "the gardens of Mughal were originally inspired by the Timurid ones"; while Stuart (1913: 4) stated that the Gardens of the Great Mughal were copied from the gardens of Persia. In another piece of writing. Asher (1991: 47) states that Taj Mahal was ultimately modelled on the Timurid gardens however, she is not sure about the relationship between Mughal and Timurid gardens since no Timurid gardens survived intact. Therefore, there is scope for future studies in the field of Persian gardens with the aim of ascertaining that the Timurid Gardens of India could have been directly inspired by the gardens of pre-Islamic Persia.

Four usage types can be identified for Babur's gardens in addition to residence and camps. First, gardens were used as an extension of the Mughal funeral tradition. Most of the Timurid tombs were placed in cemeteries, although, "during Babur's region the gardens became the characteristic Mughal setting for tombs" (Asher 1991: 50). Second, being a centre of power for Babur, the gardens were used as a space to accommodate the empire subjects. Third, gardens were used as a venue for wine parties, which were strictly open to men only[38]. Fourth, they were used to hold religious rites [39]. The symmetrical ordered gardens and orchards designed by Babur were created in large cities. The four-part, ordered gardens represented the Timurid (originally Persian) tradition in the area of Agra and were called Kabul[40] by local inhabitants; which is still called Kabuli Bagh today. Mughal gardens covered both

[38] Wine parties were a ritual of the late Timurid, called "common custom" by Babur. There is no record of Babur drinking except one occasion in 1507 in which he drank, as the party host was like a father or an elder brother to him (Asher 1991: 46-50).

[39] Only one religious celebration was held in such gardens; it was in 1527 during Ramadan in the garden of Sikri when Babur added the establishment of Islam to the mission of his empire (Asher 1991: 46-50).

[40] Babur set out his first Chahar Bagh gardens there.

banks of the river Jumna. This possibly constituted a reference pattern for the urban scheme of the Chahar Bagh Avenue in Isfahan, Iran, which would be later conceived by Shah Abbas.

6.5.1- Mughal Gardens of Agra

The garden tradition was transferred and introduced to India from the north (Persia) (Stuart 1913: 1-57). Despite being originally created in the heart of the desert lands of Iran, the cultural tradition of Persian garden emerges in far more lavish areas such as Agra. Gardens created during the comparatively long reign of Firuz Shah[41] from 1352 to 1388 in India demonstrated more peaceful spaces than those of his predecessors. Almost 150 years after Friruz Shah, Mahommed Babur made his final conquest of north India in 1526 and Agra (the earliest Mughal garden) became his capital (Stuart 1913: 5-10).

Asher (1991: 53) offers the following quote from Babur: "Formerly its course was zig-zag and irregular; I had made it straight and orderly; so the place became very beautiful". The reason here for citing Babur is that he complained about the charmless and disorderly nature of Hindustan which he had to fix by planting ordered and symmetrical gardens to make it pleasant. Babur's intervention speaks of the role of art in reorganising the reality by imposing order. Therefore, the landscape design culture of Central Asia was introduced here from Persia through Babur's agency (Grabar & Dickie 1985: 128). The creation of the imperial *chahar-bagh* in Agre (garden palace, literally "four gardens") was not as great as the gardens of Samarkand and Kabul due to the flat topography of the land (Figure 71). At the same time, Hindus lost much of their interest in gardening and did not make any effort to irrigate more plants and trees except for those around the built tanks. However, in conjunction with Babur's conquest of Agra, the long-lasting tradition of building and irrigating gardens (unbroken since the gardens of Pasargadae) was further developed. Babur started the construction of the *chahar bagh* in Agra by digging a large sunken shaft that would supply the baths with water. Babur perforce had to start the work by digging wells, as there was no available spring or rivulet near Agra (Stuart 1913:39-41). The next step was planting Ambli (Indian tamarind trees) and building an octagonal tank on the ground. After he proceeded to form the main tank and its

[41]Shah Firuz, the successor of Muhammad bin Tughlaq, was a Turkic ruler who became the sultan of Delhi from 1352 to 1388 at the age of 45.

enclosure, he constructed a grand audience hall in front of the stone palace. Then he completed the Agra gardens with private apartments and baths. Bathes were an important part of Babur's designs as they addressed the three most unforgiving features of the Hindu land's climate - heat, strong winds and dust. Figure 72 shows a panoramic view of Agra fort and the marble palace within.

Figure 71: The Agra fort for 1558-1857 (Yale School of architecture)

Figure 72: First and second from top: Panoramic views of the Agra fort (Google map), bottom: A panoramic of the marble palace in the Agra fort (www.craigprince.com)

The garden-palaces at Agra on the bank of the river are good examples of the garden design introduced into India by Emperor Babur, in them geometry, water, plantation and construction were highlighted in configuration of the garden layout. People who had never seen such beauty materialised in a built plan named this side of the Jumna River 'Kabul'. Ram Bagh was one of the mentioned gardens along the River which is said to have been constructed by Babur between 1526 and 1530. Ram Bagh is suggested here for analysis as one of the examples of the Agra garden type. It is the oldest surviving Moghul garden and may give us the opportunity to investigate the inherited (from Persia and Timurid) and new features represented within Indian gardens.

6.5.2- Ram Bagh

Ram Bagh was built in the time of Jahangir - the great grandson of Babur – on the west bank of the Jumna River (Figure 73). It was possibly the garden-palace of Babur and one of the many palaces of the empress Nur Jahan[42]. Ram Bagh was reconstructed as Bag-i-Nur Afshan (Grabar & Dickie 1985: 129-137).

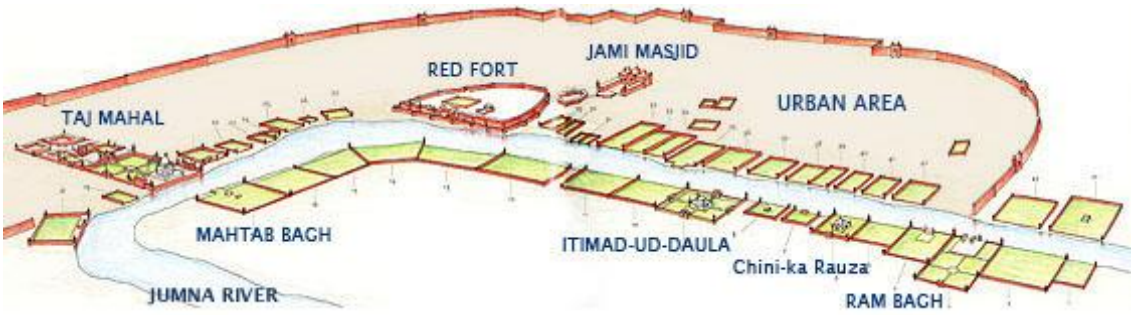

Figure 73: River front garden city of Agra (Koch 2006: 130)

Unfortunately, the original character of this garden is almost lost. The modern paths replace the historical formality, and riverside traces are modernized and reconstructed. Babur created the Ram Bagh according to the *chahar bagh* pattern and Timurid terraced plan in 1528, which means 70 years before the construction of Chahar Bagh Avenue in Isfahan by Shah Abbas. The Ram Bagh is considered as the Mughal gardens prototype, since it is the earliest Mughal garden in India (Grabar & Dickie 1985: 129).

[42] It was possibly the garden-palace of Babur and one of the many palaces of the empress Nur Jahan (Grabar & Dickie 1985: 129-137).

The fact that the paved walkways of Ram Bagh were 10 feet above the level of the beds is an indication of a design feature typical of Islamic gardens: the possibility to look down, while strolling, towards the green areas. This was a feature which earlier appeared in the gardens of Casa de *contratación de Sevilla* in Spain and *Al-Badi* in Morocco, and later has been used repeatedly in the gardens of Mughal. The height of the flower beds in relation to the walkways varied according to the type of flora planted there. The height of the flower beds in relation to the walkways varied according to the type of flora planted there. This meant that some of the gardens were quite shallow, while others were very deep. Ram Bagh was constructed on three terraces; water was supplied to the garden from the Jumna River through wheels and flowed into the network of canals, cascades and tanks descending down the terraces. Each cascade had red stone steps on both sides adjoining a pond (Figure 74). To address the above mentioned local climatic conditions, Babur also built a bath in the basement of the uppermost terrace. This was reconstructed, under the name of Bagh-i Nur Afshan, in 1621 by Babur's great grandson Jahangir (Kumar 2011).

Later examples show that steps flanked the water chutes, below which the water cascades from the causeways shows that the parterres were designed to be generally accessible. Therefore, the indo-Islamic gardens of Mughal were arranged on two levels; visually as a living carpet on the upper level, and sensually on a lower level as a place of shade, coolness and intimacy (Grabar & Dickie 1985: 129-137)[43].

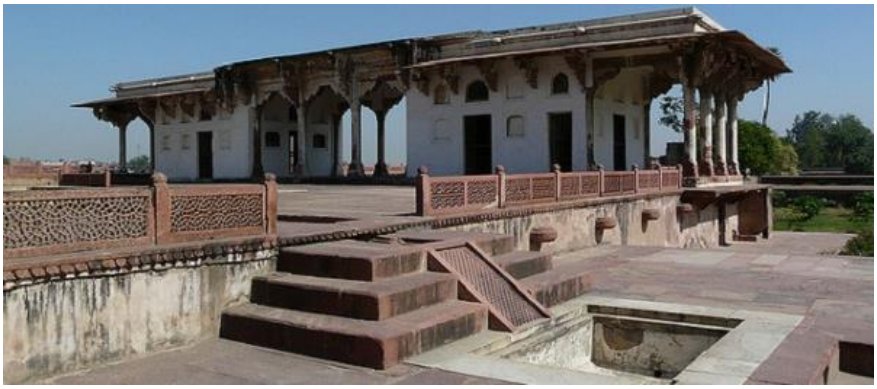

Figure 74: The Ram Bagh (Aram Bagh) originally designed by Babur (Google map)

[43]Babur had seen such gardens at Samarqand and Kabul through the Timurid gardens .This was very clear to Clavijo when he visited a garden near Samarqand in the fifteenth century; on that occasion he stated*: "… and among these causeways and trees were pathways which crossed the entire orchard; and in the centre was a high hill composed of earth thrown up by hand within palisade a of wooden stakes and linked to these walkways were others, lined with trees, from which the whole orchard was visible…"* (Grabar & Dickie 1985: 137).

The terraces, fountains, and narrow watercourses, with their tiny, carved water-chutes, and the old well from which the garden was supplied with water from Jumna are the famous features of Mughal gardens (Stuart 1913:43).

All the gardens along the Jumna River were built on a series of terraces on a sloping ground, on the basis of the usual Persian plan[44]. Based on the tradition of the time, the ideal pleasantness was itself the symbol of life, death, and eternity, which should have been represented via eight traces or parts following the division of the eight Paradises in the Quran (Asher 1991: 46-55). The renowned Persian poet "Sadi", whose most famous work is *The Rose Garden,* states that:

> Mature consideration as to the arrangements of the book made me deem it expedient that this delicate garden, and this densely wooded grove should, like Paradise, be divided into eight parts in order that it may become the less likely to fatigue (Stuart 1913: 6).

These eight parts may have been taken from the Paradise-garden of the Quran, which considered a perfect idea for the perfect garden.

As mentioned above, gardens became a characteristic Mughal setting for tombs during Babur's epoch, a new function not existing in previous gardens. I have selected one of the earliest of these examples - the tomb of Humayun in Delhi, the second emperor of the great Mughal - in order to analyse and investigate the possible changes within the structure and layout of the gardens of this type.

6.5.3- Humayun's Tomb

This funeral garden shows a grand strong Persian influence on its revolutionary work which began in 1557 and was finished in 1565 (Stierlin 2002: 212-313). The tomb stands at the centre of a strictly regular chessboard with 36 (6*6) squares which are outlined by water channels and pools and used for irrigation, while the tomb itself occupied four squares. Sterlin (2002) indicated four gates on the two perpendicular axes as the entrances to this enclosure. The plan of the garden with the fountains is a reference to the Persian *chahar bagh* layout. Stierlin states, "this division is

[44] An example of which can be seen in Zaura Bagh, another walled area belonged to one of Babur's daughters. The garden is the largest garden-palace at Agra, located between the Ram Bagh and the Chini-ka-Rauza. Five miles from Agra is the tomb of Akbar, Babur's grandson (1556-1605), located in the middle of a vast level garden (Kumar 2011).

associated with the cosmological vision of universe watered by four Rivers of Paradise[45]"(Figure 75) (Stierlin 2002: 241).

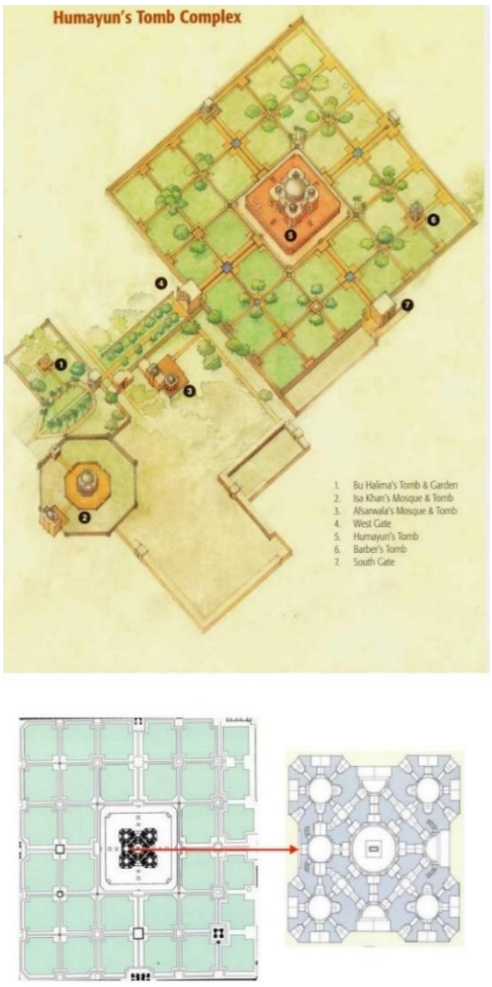

Figure 75: Top: Map of the Humayun's Tomb Complex (1565) in Delhi (Adopted from Indian Diary 2014, bottom, left: Plan of the Humayun's complex (1565) in Delhi, the tomb lies at the centre of gardens intersected by a grid of irrigation channels and paths, bottom, right: the plan of Humayun tomb, designed in a symmetrical geometry (Stierlin 2002: 238-239)

Based on this cosmological vision, both ancient and Islamic images of the Persian gardens are embraced within this scheme. Moreover, the concept of the four cosmological visions of the universe makes reference to the Persian Zoroastrian belief in and worship of the natural elements of earth, air, fire and water. Therefore, there is no doubt in the overlapping of Zoroastrian (Ancient Persian) and Islamic faith in configuration of such gardens in the land of Hindustan. Notably, the geometric pattern plays on the number four, a number which symbolically stands for

[45] The Four Rivers of Paradise is a Quranic reference to the celestial Paradise, where the Lord pointed to the four rivers of milk, honey, water and wine (Kumar 2011).

perfection in Islamic culture [46]. The Humayun's mausoleum structure is symmetrical along two axes with a radiating arrangement in which a mass of hollows and projections is skillfully articulated (Stierlin 2002: 212). The tomb is symmetrical and centralised (Figure 76). Simplicity, particularly in decoration, is another feature of Mughal architecture; it is apparent in the use of white marble instead of the multicolour-patterned ceramics used in Timurid decoration (Stierlin 2002: 212-313).

Figure 76: Aerial photo of Humayun's tomb in Delhi (Archnet 2014)

The association of Babur with the garden metaphor appears to have appealed to Homayun and Akbar (two later emperors of India). Babur and Humayun had little opportunity to build during their short time in power. It was mainly during the Akbar - who started the Mughal tradition - that the Mughal gardens were moved from the Timurid heritage. Besides, more importance was given to the development of Agra as a riverbank city due to the movement of Akbar's capital from Delhi to Agra in 1558[47]. The Mughal's basic concept in garden design was similar to that of the

[46] When you are four years, four months and four days old in Indian Islam it is common practice to recite something for the first time from the Qur'an. Islamic history points to the four righteous caliphs. The number four is a symbol of the universal *khilafat* as well. In the Othman dynasty there were four main functions in the court. In Sufism they talk about four main keys: 1. Shariat 2. Tariqat 3. ma'rifat 4. Haqiqat (Milani 2013: 184-189)

[47] After living for some time in Agra, Akbar decided to create a new capital in a defensible red fort in 1569 known as Fatehpur Sikri (Stierlin 2002: 244). The present form of the first preserved Sikri palace-garden is divided into six plots by three intersecting paved walkways, surrounded by a perimetric paved walkway. The second preserved palace known as Zanan consists of two terraced levels. Through the central part of the upper level, a narrow water channel runs, along which two-pillared large kiosks are placed. A covered pool, known as Mariam's Bath, in the southeast corner provides water supply for the channels. It is remarkable that these two palace gardens represent two

Persians - to construct a symbolic structure of power, a royal residence including places for entertainment in a designed version of nature (Koch 1997: 143-165).

6.6- The paradisiacal image in the Mughal gardens

The most spectacular design among the gardens of Mughal can be seen in the gardens of Shalimar in Lahore (1632 AD) and later on in Taj Mahal (1632-1653). Although the construction of both gardens happened after the construction of Chahar Bagh Avenue, I briefly consider them here as they strongly embody the image of Paradise in their layout.

6.6.1- Shalimar garden (Lahore)

The Shalimar garden, also known as 'Residence of Love', was created in 1642. The plan still follows the archetype of four square ancient Pasargadae, but in a tripartite layout (Figure 77). The gardens comprised two 200-metres squares separated by a ditch that eased water drainage (Stierlin 2000: 168-181) [48]. Mulla Abdul Hamid Lahori and Muhammad Salih Kamboh were two historians who recorded the name of the upper terrace as "*Farah Bakhsh*" (bestower of pleasure) and the lower terraces together as "*Faiz Bakhsh*" (bestower of plenty). The name, Shalimar, was mainly interpreted as "abode of bliss" or "light of the moon" (Sikandar 1986: 24-29). A 50-metre middle band, separating the two squares, consists of a Turkish pool in the middle (numbers 4 and 5 in Figure 77). The whole of the garden area was surrounded by the wall while *burj* or towers occupied the corners surmounted by a red sandstone octagonal pavilion. The garden layout consisted of three terraces descending from south to north [49] (Stierlin 2000: 168-181).

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major Mughal gardens - the Chahar Bagh and the terraced garden - in a highly elaborate architectonic form (Koch 1997: 143-165)

[48] In building the Shalimar gardens in Lahore, Ali Mardan Khan, the Persian ruler of Lahore, sought the permission of Shah Jahan to build a canal. This was built from the Ravi River to Lahore in 1632 AD with the help of Mullah Abdul Mulk in 1641 and the foundation of the gardens was laid in the same period. Emperor Shah Jahan paid his first state visit to the complete garden exactly one year later (Sikandar 1986: 24-29).

[49] Each terrace (upper and lower terraces) measures 290 square yards and is symmetrically divided into four units; and each segment subdivided into four parts by paths and orthogonal channels, pathways and a centrally placed pool (Stierlin 2000: 168-181). Access to the garden for the visitors was provided through two elegant gates to the eastern and western side of the lower terrace. Therefore, the direction followed in visiting the garden was upward so that new delights were revealed as each terrace was approached (Sikandar 1986: 24-29).

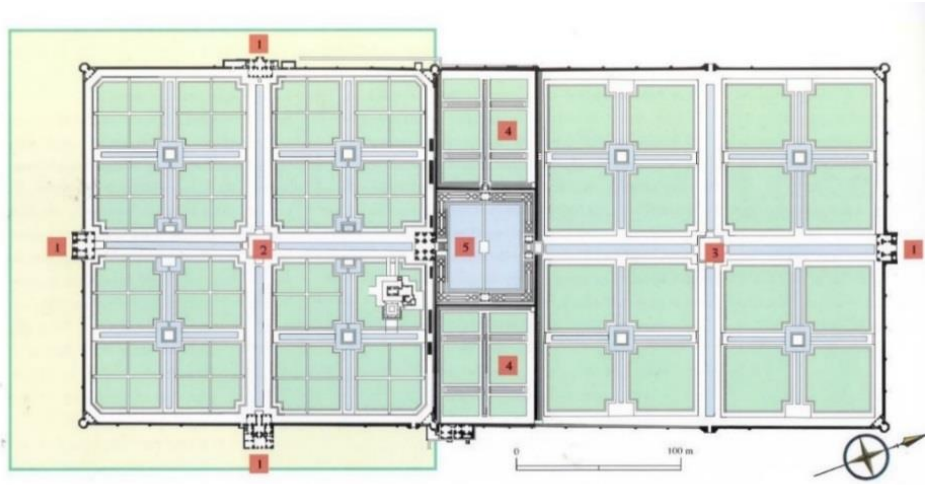

Figure 77: Plan of the Shalimar Gardens in Lahore; Heaven on Earth (Stierlin 2002: 174)

1- Entrance gate
2- South garden in Chahar Bagh style
3- Northern garden in Chahar Bagh style
4- Intermediate zone

The planting order used in the garden followed the names given to both the upper terrace and the lower one (including the middle terrace). The upper terrace was planted only with flowers (*Farrah Bakhsh* or bestower of pleasure) while the middle and lower ones (*Faiz Bakhsh* or bestower of plentifulness) were respectively reserved for sweet-scented shrubs and fruit trees. Fruit trees were from every season and climate including mango, cherry, apple, seedless mulberry, almond, and sweet orange. Both the eastern and western sides of the middle terrace were planted with roses and the raised brick pavement (walkway) known as *khiaban* was surrounded by cypresses, *Chenar* (sycamore tree) and poplar trees, providing shade for visitors. The water order was provided through the canal referred to above, which brought water from one hundred miles away from the north east of Lahore. After entering the garden from the south, crossing the upper terrace and passing underneath the tomb, it filled the central tank at the intersection of the canals and overflowed into side canals[50](Stierlin 2000: 168-181).

[50] The central tank played the role of storage to supply water for the fountains. After filling the tank, the canal spread into two small cascades to the eastern and western sides, and passed into the lower terrace canals. The canal was also used to irrigate the grassy plot and trees (Sikandar 1986: 24-29). The sense of coolness was provided through dozens of fountains, whose water spouted in the middle pool in the gap between two gardens. Apart from the comfort and pleasure in life, the spiritual aspect of Mughal concerns was in no way diminished, and space for prayers was provided within them. The purity of beliefs in Paradise materializes in the white sacred architecture of Shalimar gardens in Lahore; this was replicated in its perfection within the garden of Taj Mahal. Lahore became famous as

6.6.2- Taj Mahal

Although Asher believes that the new Mughal gardens were the centre of royal power and nothing to do with sophisticated paradisiacal symbolism, Taj Mahal shows that the paradisiacal image embodied in the Mughal gardens was a feature for which it would later become famous. The Taj Mahal plan[51] in Figure 78 shows the care and precision taken in forming the square gardens. In addition, the ornamentation in the greenery adds an element typical of the calligraphic Islamic art style to the garden. Mention of a Paradise garden for the gods can be found in the first writings known to man, dating from around 4000 BC during the Sumerian period in Mesopotamia.

James Wescoat (1996) argues that there are two main classes of signs by which an exact imitation of the celestial Paradise could be seen in the construction of the Taj Mahal.

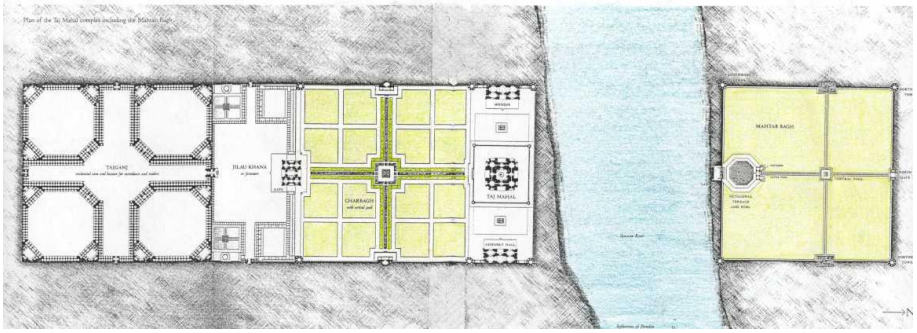

Figure 78: Taj Mahal plan (From: https://www.pinterest.com/pin/539376492848026471/)

The first class is the Islamic literary tradition relating to the inscription of the Taj Mahal's gateway, which consists of the entire sura 89 (al-fajr). The last words of this inscription are "Enter to my paradise" which explains a direct invitation from god to

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the city of Gardens. Gardens were a place for relaxation and pleasure under Mughal patronage and Shah Jahan showed his personal interest in designing such spaces (Stierlin 2000: 168-181).

[51] In the plan of Taj Mahal it can be seen that two buildings made of red sandstone framed the east-west axis of Taj Mahal, topped by three white domes (refer to appendix II). The one to the east (right) was for the purpose of accommodating important guests and the other one to the west (left) was as a funerary mosque. Both mentioned buildings were designed for the pilgrims of Shah Jahan and his wife Mumtaz Mahal (Stierlin 2002: 212-313). The two zones represent the funerary and the worldly realms, and are related to the Islamic concept of din wa dunya, the domains of the spiritual and material lives (Koch 2005: 137). In my opinion this concept is in line with what Alemi (1986: 38-45) explains regarding Zoroastrian beliefs in the division of the universe into two parts, a celestial one and a worldly one. According to the ancient Iranian religion (Zoroastrian), based on Avesta, Ahura Mazda created the first man and provided him a massive garden to live in. Four rivers surrounded this garden and many channels irrigated these rivers. The garden was abundant with fruits and creatures lived in perfection until Ahriman, who was in charge of keeping the garden lit, let a torch fall and was put out of the Paradise (garden). Since then a struggle between darkness and light has raged, and the universe is divided into a celestial and a worldly domain under the influence of this conflict.

the Paradise. This inscription made a clear symbolism of Taj Mahal for the Muslim visitors of the seventeenth century.[52] The second of the mentioned categories is the allegorical scheme of Taj with its four water channels, symbolising the flowing rivers of Paradise, while the marble tank in the middle of the garden is a replica of the celestial tank of abundance known as *Kawsar*.

> On the Day of Judgment Muhammad will stand on it before god to intercede for the faithful. He also mentioned Salih's effusive evocation of the beauties of the Taj's garden, that each of the garden trees surpasses the celestial *Tawba* tree. The roots of the *Tawba* tree, which are traditionally said to grow downwards, are attached to the underside of the Pedestal (*Kursi*) supporting the Divine Throne (*Arsh*).Therefore, it is clear that Taj's gardens intended to be a replica of the paradise by its architect *Ustad Ahmad Lahori* (Wescoat 1996: 228).

There had of course been a long-established convention in relation to the metaphorical equation of gardens, particularly in the case of Chahar Bagh with the gardens of Paradise. However, the symbolism of the Taj Mahal's plan pointed to a highly systematic programme of symbolic equations (Wescoat 1996: 213-232).
From the plan[53] of the Taj Mahal it is evident that garden plays the central role for the architectural concept of the site. The location of the tomb provides an unobstructed panoramic view of the entire garden, reflecting a sophisticated concern for visual unity and holistic planning and resulting in a dramatic vista that is comparable to that of Isfahan's area of Chahar Bagh.

6.7- Conclusion

The analysis proposed in this chapter of key examples of Timurid and Mughal gardens provides us with a general overview of each garden's layout in terms of order and elements. Timurid gardens were strongly influenced by Persian gardens in the general geometry of the plan; this can be seen in the significant use of rectilinear layouts enclosed within the wall. Emphasis on the long axis was the new feature in

[52] Notably, the explanation of Paradise from the mystic Islamic texts of Mughal period is very similar to the explanation of ancient Persia in the Quran: "an ideal garden of abundance with four rivers flowing from a central spring or mountain along the four cardinal directions" (Sparavigna 2013: 106).
[53] The garden of Taj Mahal is not relative to this study as the date for its construction is subsequent to the Chahar Bagh. However, I have included an analysis of this Mughal masterpiece in the appendix. For further information, refer to: KOCH, E., 2006. *The Complete Taj Mahal and the Riverfront Gardens of Agra*. London: Thames and Hudson.

both gardens of Timur and Babur while the symmetrical geometry about the main axis, in a rectangular enclosure, on descending terraces was the continuation of the pre-Islamic and early Islamic garden layouts. The terraced gardens of Timur were inspired by the Spanish gardens of Madinat al Zahra and appeared for the first time in Timurid gardens of Bagh-I Naw. This rectangular *chahar bagh* geometry on a terraced land became the typical layout for the next gardens of Herat, Kabul and India.

The significant change which took place in the order of the Timurid gardens related to the hierarchy aspect, whereby the location of the pavilion was relocated to the highest level of the far end of the garden. The initial example of this transformation can be seen in the Bagh-I Dawlatabad, where it has been explained that the "central stream stepped down six levels, from the main pavilion terrace, passing through six ponds" (Golombek 2012). The hierarchy of the component in Timurid gardens has been highlighted in this description; a feature which never existed within the gardens of pre-Islamic and Islamic times and was repeated in the gardens of Babur in Kabul and Mughal in India. This order is known as the Heravi layout; Heravi was an expert in agriculture and was invited by Babur to India to design the *chahar bagh* gardens of India.

Similar to the earlier gardens of Persia and early Islamic example of Syria, Morocco and Spain, pavilion, water, wall and pathway were still considered the main construction elements in both the Timurid and Mughal gardens. The gardens of Samarqand were all in a rectangular enclosure, supported by walls. Highlighting some of the changes in the garden elements, we could point to the transformation of the pavilion to the palace when, in Timurid times, the gardens were holding royal ceremonies. This change can be understood by analysing palace decoration, where the marble pillars, decorated by lapis and gold surfaces and covered by glazed tiles walls were dazzling the eyes. Bagh-e Shimal was the initial example of the palace-garden in Samarqand. Notably, the palace gave way to the tomb in the funeral gardens of India. An additional element in the construction of the Mughal gardens was the innovation of bathhouses which addressed the climate issues of Hindo land. Large or small water tanks decorated by small fountains, water streams, and pools were used to display the element of water. Derived from the new layout of *chahar bagh* by Heravi, the main pool was located in front of the main pavilion/palace and fed by the main watercourse passing through the main longitudinal axis, creating

small waterfalls when they flew from one level to the other. Side canals were added, leading out from the main tanks and terminating in the main catchment pool, while pipes from the stone-bordered canals and tanks provided the required water for irrigation (Stuart 1913: 9-15). Alternatively a series of terraces were employed by Mughals as a solution wherever this was needed[54]. Therefore, the need for irrigation in the Timurid and Mughal gardens, as was the case in pre-Islamic Persian gardens, dictated the whole plan and the design of the enclosures.

The general lines of the garden were enhanced by planted trees, where the sycamore and cypress trees formed the backdrop for flowers along the streams and the planted rose bushes (Stuart 1913: 10-20). Figure 79 shows the temporal movements diagram of Chhar Bagh gardens.

The following tables illustrate the difference between Persian gardens and Babur gardens (pre-Islamic and Perso-Islamic gardens).

The main question is the reflection of gardens layout - including order and elements - of pre-Islamic and Islamic periods in the Safavid layout of Chahar Bagh in Isfahan. How do Persian gardens built during the Safavid time reflect the influence of both pre-Islamic and Islamic gardens? Answering this question requires the gathering of information through the analysis of historical shifts in political and cultural uses of the Safavid gardens, which is the main focus of the following chapter.

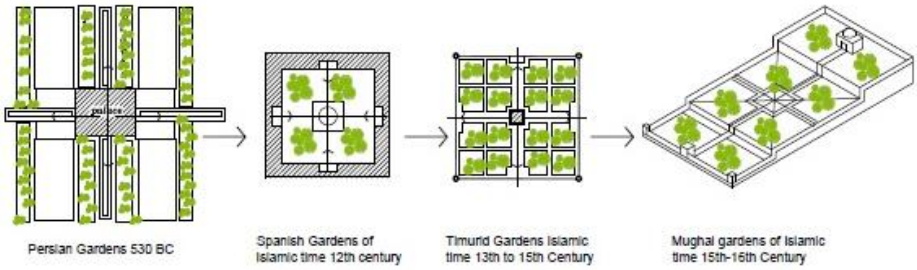

Figure 79: Diagrammatic movement of Chahar Bagh layout from pre-Islamic time to the Islamic Chahar Bagh for 16th century.

[54] Grabar quoted from Wilber in a very penetrating way:

> The basic fact was the gardens of Herat and Samarqand could not be transferred to the Indian plains. The climate as not suitable for orchards and vineyards, which required a cold season to establish a dormant state in the plants and trees. In the mountainous regions the fine gardens has been the outgrowth of the Bustan (orchards), and the concept of Gulestan (Flower garden), matured at a later date. Lacking the possibility of producing dense productive orchards, the Indian gardens developed towards great open spaces and wide expanses of water (Grabar 1985: 129).

Table 2 :the difference between Persian gardens and Babur gardens (pre-Islamic and Perso-Islamic gardens).

				HISTORICAL ERA/DYNASTY		
				Achaemenid and Sassanid	Timurid gardens 13th -15th	Mughal gardens (Babur), 15th -16th
Typology				Chahar Bagh	-Chahar Bagh -Terrace gardens	-Funerary garden -Terrace gardens
Example				Pasargadae	Samarqand	Shalimar
Garden Features	**Tangible**	**Landscape**	**Geometry**	-Two main perpendicular axes -Visual symmetry	-Two main perpendicular axes -single main axis -Visual symmetry -Terraced gardens	Single main axis Geometrical symmetry in design Terraced gardens
			Water	-Main stream -Secondary streams -Main pond at the intersection of two perpendicular axes beneath the fountains	-Main stream -Secondary streams -Main pond at the intersection of two perpendicular axes beneath the fountains	-Main stream -Secondary streams -Ponds -Fountains
			Plantation	-Bush and low-rise plants -Shading trees on the sidelines	-Lack of shading trees on the sidelines -Blocking the perspective view by planting high-rise trees within the Crete	-Lack of shading trees on the sidelines -Blocking the perspective view by planting high-rise trees within the Crete
		Building	**Structure (wall, palace and pavilion)**	- Palace at the intersection of the two main axes -Enclosure along the site boundary	- Pavilion as the main building to the highest part of the garden -Enclosure along the site boundary	-Tomb as the main building to the highest part of the garden -Enclosure along the site boundary

				HISTORICAL ERA/DYNASTY		
				Achaemenid and Sassanid	Timurid gardens 13th -15th	Mughal gardens (Babur), 15th - 16th
Typology				-Chahar Bagh	-Chahar Bagh -Terrace gardens	-Funerary garden -Terrace gardens
Example				Pasargadae	Samarqand	Shalimar
Garden Features	**Intangible**	**Function**		-Governmental -Residential -Funeral	-Governmental -Residential -Funeral	-Governmental -Funeral
		Privacy		-Wall	-Wall elaborated by battlements	-Wall elaborated by battlements and round pigeon towers
		Views and vistas		-Clear visual perspective through the main path -Clear perspective of the segmentation	-Breaking of perspective views	-Breaking of perspective views
		Sense of unity	**Order and unity**	-Equal spacing between crop plants and rows -Open orderly vistas	-Equal spacing between grassed areas -Open orderly vistas	-Equal spacing between grassed areas -Open orderly vistas
			Rhythm and repetition	-Repetition of grassed areas -walk ways -water features	-Repetition of grassed areas -walk ways -water features	-Repetition of grassed areas -walk ways -water features
			Scale and proportion	-Proportion between green and non-green areas	-Proportion between green and non-green areas	-Proportion between green and non-green areas
			Balance and harmony	-The use of vertical and horizontal lines (tall trees, walk ways, streams)	-The use of vertical and horizontal lines (tall trees, walk ways, streams)	-The use of vertical and horizontal lines (tall trees, walk ways, streams)

Reflection of pre-Islamic and Islamic gardens and beliefs in the formation of Chahar Bagh Avenue

7.1- Introduction

7.2- Inspiring Factors in The Design of The Isfahan Urban Pattern

7.3- A comparison Between Chahar Bagh and Timurid Paths

7.3.1- Innovative Features in The Safavid Chahar Bagh of Isfahan

7.4- A comparison Between Isfahan Chahar Bagh and Mughal Gardens

7.5- Reflection of The Celestial Paradise in Chahar Bagh

7.5.1- The Concept of The Paradise Garden

7.6- The Reflection of Iranian Beliefs in Chahar Bagh

7.7- Similarities Between Iranian and Islamic Beliefs in The Structure of Islamic Persian Gardens

7.8- Conclusion

Chapter 7: Reflection of Pre-Islamic and Islamic Gardens and Beliefs in The Formation of Chahar Bagh Avenue

7.1- Introduction

When, six thousand years ago, agriculture became the main feature of the Iranian civilization, trees, plants and water meant life and activity in the arid climate of Iran. In addition to the contribution of the political and economic subjects in the construction of gardens, the spiritual beliefs, the perfection of the universe, luxury and leisure, power, and protection were represented within the gardens. The tradition of making pleasant gardens continued from the Acheamenid times through the form of quartered gardens to the Parthian and Sassanid periods. The invasion of large parts of the Sassanid Empire by the Arabs after the seventh century led to the diffusion of the Persian garden archetype in the Middle East. Despite the climatic difficulties in the area, the design of gardens, which represented the Quranic Paradise, was possible through the presence of the qanat, the underground irrigation system (Haghighatbin et al 2012: 81-83).

Chahar bagh gardens appeared in different countries such as Spain, Italy and Morocco, central Asia, and Mughal India. This continuity supported the development of *chahar bagh* through history. Analysis of the Islamic garden evolution undertaken in the previous chapters highlighted the development of the paradisiacal aspect of gardens, represented through an emphasis on the aesthetic image of the gardens, during Islamic times. The main aim of analysing these gardens was to establish a coherent narrative of *chahar bagh* garden history from its earliest manifestation, to highlight the significant changes and continuities in garden components over the centuries. The construction of Safavid Chahar Bagh gardens in Isfahan started after the gardens of the Mughals in India. This may strengthen the hypothesis of the reflection of the evolved pre-Islamic and Islamic gardens in the concept of Chahar Bagh Avenue of Isfahan in Safavid times. Thus, this chapter explores the possible influences and highlights the perfection of this concept based on Iranian cultural and religious beliefs.

7.2- Inspiring Factors in The Design of the Isfahan Urban Pattern

After Shah Tahmasb[55], Shah Abbas I (1588-1629) established Isfahan as the centre of his power. He designed a plan for the southern end of the old Maidan, integrated with the Zayande Roud River, and created the formation of a new magnificent city. The near-orthogonal intersection of Chahar Bagh and the River created a *chahar bagh* pattern on the scale of a city, which represents a synthesis between three main features of Persian and Islamic patterns of Paradise, Turk and Mughal nomadic uses of garden, and the principles of a royal capital city (Haghighatbin et al 2012: 81-83). Most poets and writers chose the theme of garden and the metaphor of Paradise to appreciate the beauty of Isfahan and extol it as an imperial city planned by Shah Abbas I.

دیدی تو اصفهان را آن شهر خلد پیکر آن سوره مقدس آن عدن روح پرور
آن بارگاه ملت و آن تخت گاه دولت آن روی هفت عالم آن چشم هفت دولت

> Have you seen Isfahan, That city like paradise?
> That holy cypress, the soul nourishing Eden;
> That palace of the nation and that throne of government
> That face of the seven spheres, that eye of the seven lands (Jamal al- Din Isfahani quoted in Walcher 1997: 330).

The plan of Isfahan Chahar Bagh during Shah Abbas' reign drawn by Kaempfer, Cost and Chardin (Figure 80) shows a combination of pre-Islamic and Timurid garden layouts through a variety of palace gardens and their four partial divisions. Shah Abbas the Great built his capital in Isfahan and expanded his power in the city through designing the palace gardens around the Chahar Bagh and made Isfahan the most spectacular garden city of the sixteenth century (refer to 3.4. "The importance of Safavid political viewpoints in the creation of Isfahan's unique urban pattern").

The Chahar Bagh Avenue, as the main element in Shah Abbas' plan for Isfahan, formed the central axis of the Safavid city lined with 30 gardens. Although Safavid gardens of Isfahan were considered the apex of Persian garden culture, they distinctly depict the tradition of their historical antecedent in their form and

[55] Shah Tahmasb moved the central power to Qazvin after the attack of Ottoman Sultan Suleiman in 1544. He chose a Sunni area to spread Shi'ism. He built the main garden to the north part of the city named as Saadat Abad as the terminal point for a main Avenue (Alemi 2008: 49). The plan of Shah Tahmasb's garden by Kaempfer in 1684 illustrates an Avenue ending in the proximity of the Ali Qapou Palace from the northern side while two perpendicular east-west accesses cut off the street, one of which reached a huge gateway to its west side. Analysing Kaempfer plan may lead the reader to consider the whole area of the Avenue, palace and the garden as a massive master garden.

function[56] as an encampment (which explains Timur's nomadic habit) and sites for political and social activity.

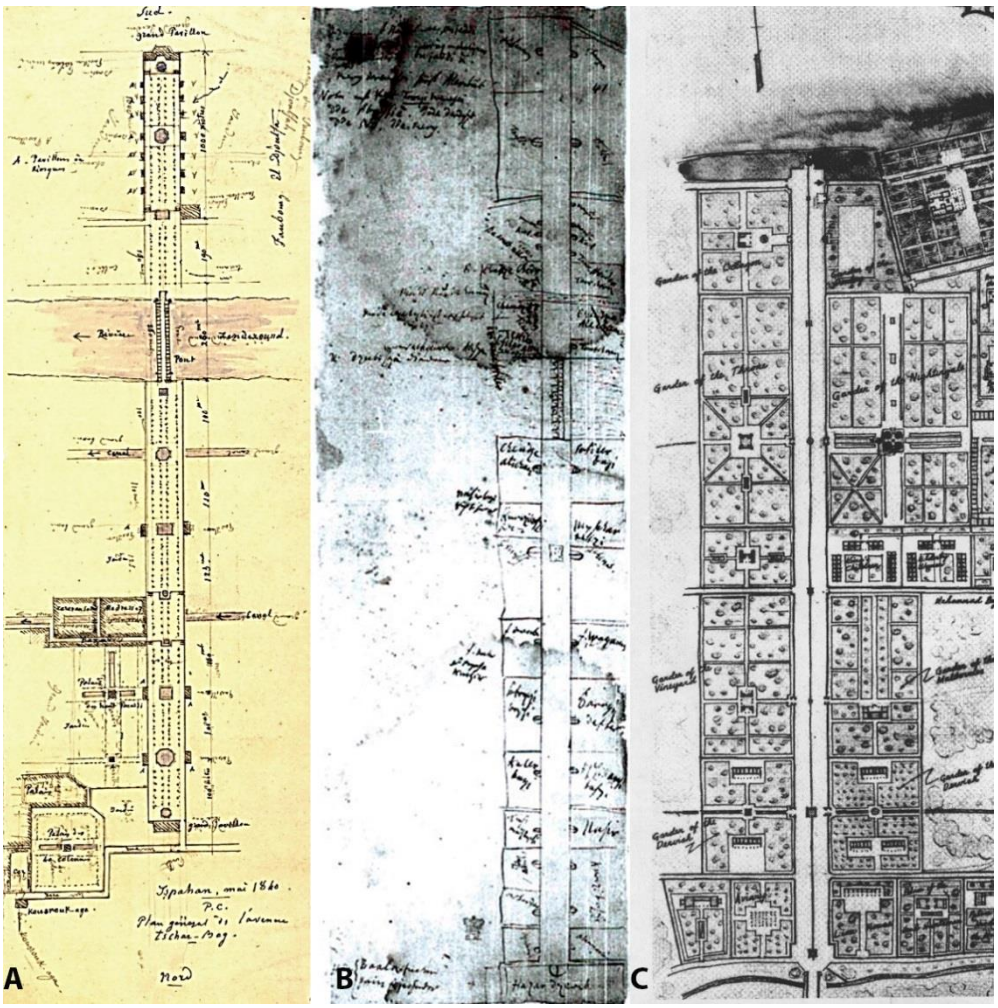

Figure 80: The plan of Chahar Bagh Avenue A: by Pascal Coste (1839-1841), B: Engelbert Kaempfer (1684), C: John Chardin (Late seventeenth century)

Shah Abbas was born in Herat (1571) whose urban pattern had been shaped mostly during the Timurid epoch. He lived there until ascending the throne; therefore, being familiar with the idiom of, Shah Abbas applied some general aspects of the Timurid Architecture of Herat (discussed within the following section), where the transformation of *chahar bagh* layout by Heravi was the significant innovation of the Timurid gardens, in his town planning and architectural contribution in Isfahan Haghighatbin et al (2012: 81-83).

[56] -The two main features in the formation and explanation of the sense of the place; for more information regarding the influence of form and function in the sense of the 'place' refer to Hashemzade, H., Yazdanfar, A., Heidari, A.A. And Behdadfar, N., 2013. Comparison of the concepts of sense of place and attachment to place in Architectural Studies. 9(1), pp. 1-11.

In Chapter 6, (sections 6.1 and 6.2) in discussing the Timurid and Mughal gardens, I indicate a close relationship and a parallel between the construction of gardens and territorial expansion by the rulers of the respective empires. At Samarqand, Timur built his gardens based on the ancient Persian archetype. In India, Babur, in turn, fashioned his monumental gardens after the Timurid gardens. Garden building projects in both cases were closely associated with expanding empires: a backdrop for expressing and exercising political and military power, but also an instrument of cultural domination. The gardens became constant reminders of the expanding power of the empires – often as a direct result of wealth acquired through annexations and usurpation. Gardens acted as barometers of cultural change and refinement – a reminder of a new imperial culture that set distinctive standards of urban sophistication. The power connotations of these gardens find support in Bourdieu's viewpoint regarding power and landscape/Architecture, which has been discussed earlier in connection with the theoretical approaches that underpin this research. The concept of the capital in Bourdieu's theory of power could be seen to align with gardens – both physically – being the seat of the king wherefrom deliberations took place shaping the empire, as well as metaphorically – the image of Islamic landscape symbolising paradise that allows the ruler to draw on an excellent lineage of ancient Near Eastern concept and practices legitimising authority. In Timurid and Safavid gardens laid out in the *chahar bagh* pattern, the location of the throne (palace) at the highest level of the garden represents the employment of topography to highlight the symbolic power of the king at the helm of this capital.

As Bourdieu believes, capital could be extended beyond the material assets, an aspect that could be seen to have been manifested through the symbolic meaning of the garden's components, creating a cultural capital that far exceeded the garden's physicality and presence. In this regard, it could be argued that a shared culture and set of public beliefs and values had shaped the garden architecture; thus the garden architecture became a representation of people's beliefs and culture. Since early history culture and Persian garden architecture (as a model of Persian architecture) have been interactive in this manner. In this sense, as much as the architecture has been the representation of cultural values, the values have acted as a medium affecting the architectural form and composition. This feature represents supports Bourdieu's concept of Habitus in gardens which is created through a social, rather than individual process, leading to patterns that are enduring and transferrable from

one context to another, but that also shifts in relation to specific contexts and over time.

Various elements of the gardens embrace their own meanings and semiology. Water and trees are considered as the most important elements in the creation of gardens. Their meanings and significance have been represented through their design and placement in gardens. Water channels shape the axes and define the plots of vegetation intensifying the placement of the edifice. Water channels also perform as the central axes of the garden intensifying symmetry and thus, centrality. All the elements of the garden perform together to provide a suitable context for the plots of vegetation. Different trees and flowers have their own site and setting designed by the garden builder and in line with the function of the garden. After water, trees have the second most important role in the garden elements in terms of meanings and semiology.

Pascal Coste's plan of Chahar Bagh Avenue in Isfahan highlights the main axis with its surrounding gardens, which can be considered the Safavid's administrative and military backbone (Figure 80 A). Chahar Bagh Boulevard and its surrounding gardens are extremely similar to the urban pattern of the garden city of Herat, in which two streets are highlighted: a straight tree-lined Avenue, named the Gozar Gah Avenue, also known as Khiaban, and another linear street used as a public walk which includes a place for public prayer outside of the town (Figure 81).

Looking at the plan of Herat and considering the explanation of its urban design by Haghighatbin et al (2012: 81-83), it is clear that the straight streets, along with the landscape design elements, including the garden and the planting, were crucial factors in the creation of this type of urban planning. A comparison between the Chahar Bagh and Herat path could be beneficial in understanding the influences of the Timurid pattern in designing the Chahar Bagh Avenue

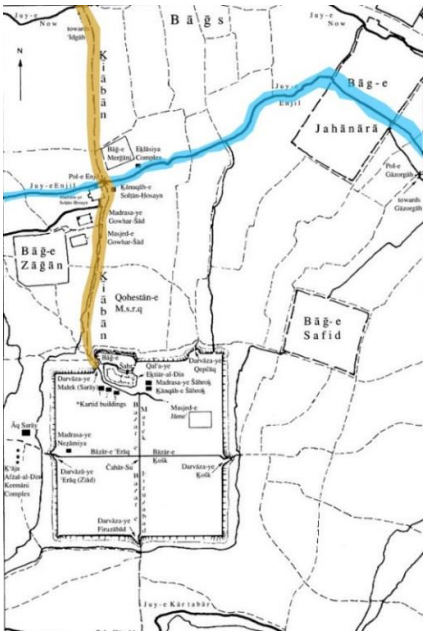

Figure 81: Timurid Herat, Afghanistan 10th CE. Gozar Gah Avenue highlighted in brown passing over the Enji River which is highlighted in blue (After Allen 1981)

7.3- A Comparison Between Chahar Bagh and Timurid Paths

There are a number of similarities between the Timurid garden and the Safavid Chahar Bagh which highlight the influence of Timurid landscape design on the creation of this Avenue. In both Timurid Samarqand and Safavid Chahar Bagh, the emphasis of urban designers was on the establishment of a linear pattern. The major difference was in the method of formation: Chahar Bagh was built according to a pre-determined plan and, as a result, all activities and elements were situated in suitable places through a unified process. This is unlike Samarqand and Herat, where the landscape design elements were used after the construction process to strengthen the recreational features along the paths. In Chahar Bagh Avenue they were used as part of the physical structure simultaneously with the building process. Another Timurid traditional feature in garden making, reflected in the gardens of Safavid, can be seen in the multiplicity of gardens along the Chahar Bagh Avenue which may express the nomadic tradition of the Timurid initiative and the use of gardens as an encampment which led to the construction of many gardens in Samarqand. The similarities between Isfahan's Chahar Bagh and the Timurid paths of Samarqand and Herat can be seen in the figure 82, which is a table by Haghighatbin et al 2015.

High similarity in terms of plantation between Isfahan Chahar Bagh, Samarqand and Herat axes can be seen in the location of the trees. Heravi's innovation in the

transformation of the *chahar bagh* layout, which influenced the later gardens, could be the reason for this similarity. According to this table, the street-side arrangement along the Chahar Bagh Avenue in Isfahan was highly similar to the Gozar Gah axis in Herat.

Chahar Bagh Avenue as a place with its functions of commercial and recreational, making connections between other parts of the city, and religious and residential, shows striking functional similarity to the Gozar Gah axis of Herat, except for the governmental function which is highly similar to the Samarqand axis.

The aforementioned information confirms that Shah Abbas was highly influenced by the Timurid architecture of Herat in the creation of the Chahar Bagh.

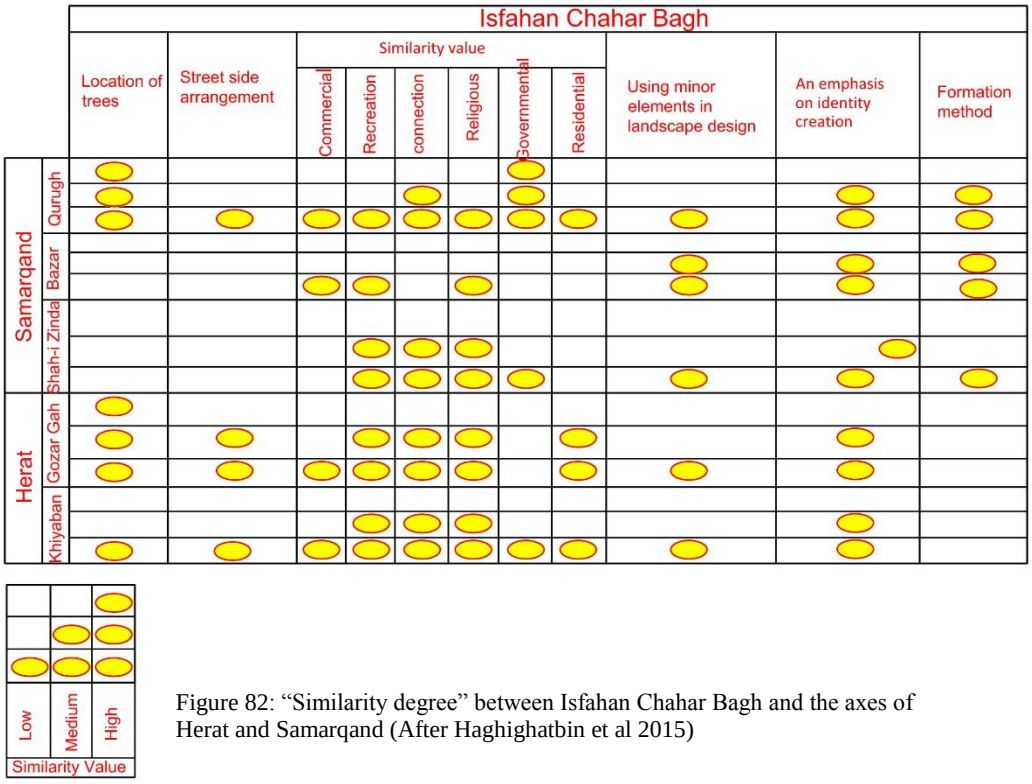

Figure 82: "Similarity degree" between Isfahan Chahar Bagh and the axes of Herat and Samarqand (After Haghighatbin et al 2015)

Analysing the city map of Herat with the Safavid urban development in Isfahan, it is clear that the formation of the Chahar Bagh over Zayander Roud and the creation of four urban zones in Isfahan were quite similar to the Gozar Gah axis of Herat, crossing over the Enjil River and providing access between different zones in terms of structure (proving a four axial zones for the city), and concept (providing access between the areas in north and south part of the river). The location of Hizar Jarib garden as the termination point for the Chahar Bagh Avenue could be inspired by the

Bag-e Sahr garden to the far end of the Gozar Gah path in Herat. Finally, the religious and cultural features of Mosques and Madrassah of Chahar Bagh – (highlighted in pink in Figure 83) – along the Chahar Bagh were almost identical by that of the Mosque and Madrassah Gowhar Sadr in Herat (highlighted in orange to the west of Gozar Gah path in Figure 83). Bags (gardens) covered the whole avenue of the Gozar Gah, a feature that was repeated in Chahar Bagh Avenue flanked by palace gardens.

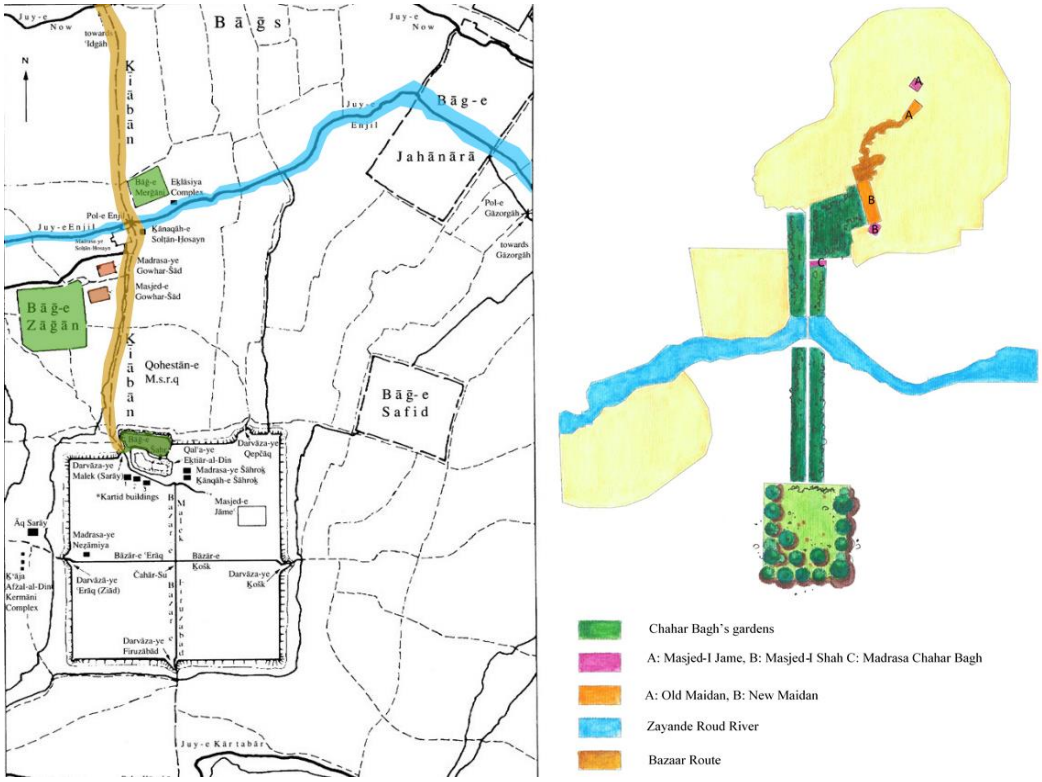

Figure 83: Left: plan of Herat, Gozar Gah pasth are highlighted in brown, orange shows the Mosque and Madrassah Gowhar Sadr and the garden of Bag – Sahr to the far end of Gozar Gah is in green. Right: Chahar Bagh Avenue and its gardens highlighted in green terminated in Hizar Jarib gardens to the south, Mosque and Madrassah Chahar Bagh is highlighted in pink to the right side of the avenue (Author 2015)

7.3.1- Innovative Features in The Safavid Chahar Bagh of Isfahan

Chahar Bagh Avenue was created according to different visual and functional requirements, which made this street a gnomonic figure in the city; a figure which offered a new pedestrian promenade with spatial features and special visual elements as has been shown in the visual analysis of Chahar Bagh (Figure 84).

Five innovative elements made Chahar Bagh a successful urban open space, as listed below:

a. The continuity of the Chahar Bagh borders; Wilber quoted from Engelbert Kaempfer (1969: 79-120) that 30 gardens were located on both sides of the Avenue which constituted the flanks of Chahar Bagh.

b. The type and location of trees; two rows of pine trees covered both side of the street and can be seen from a picture of Chahar Bagh by Corneils de Bruijn, the Dutch artist and traveller who visited Isfahan in 1703 (Figure 85A).

c. Activity and usage; commercial activities took place through the *bazarche boland* (Figure 85B), located beside the Madrassah Chahar Bagh, while the educational and religious uses took place in the Madrassah Chahar Bagh (Figure 85C). Recreation and sightseeing occurred across the whole area of the boulevard from the Jahan Nama palace to the Hizar Jarib garden which was not restricted to men only, as women also had the right to enjoy the Chahar Bagh garden and its royal gardens on Wednesdays. This idea of Shah Abbas is strongly comparable with the feminist perspectives of Timur toward the construction of his gardens (refer to Chapter 6). Governmental performances happened in a number of gardens belonging to the king and the authorities, while the residential functions took place in the palace gardens mostly around the Abbas Abad quarter to the northwest part of the river.

d. Spatial and formal character; some of the features in Chahar Bagh Avenue such as the great width, the water ponds and central water channel as well as monumental elements such as the Jahan Nama palace and Hizar Jarib garden combined to create a special identity for this Avenue as a major open space in the city.

e. Agreement with the features of heaven, according to Munshi,

> The trees raised their crowns to the heavens and the fruit bearing trees, you might say, were a graft from the Tuba tree of paradise. In sum, every garden would command the envy of the garden of paradise (Munshi 1998: 871).

The garden components such as order consisting of geometry and hierarchy, as well as elements of pathway, waters, pavilion, and plantation in Chahar Bagh Avenue were quite similar to the Timurid gardens, which in turn were inspired by the gardens of the early-Islamic times of Pasargadae.

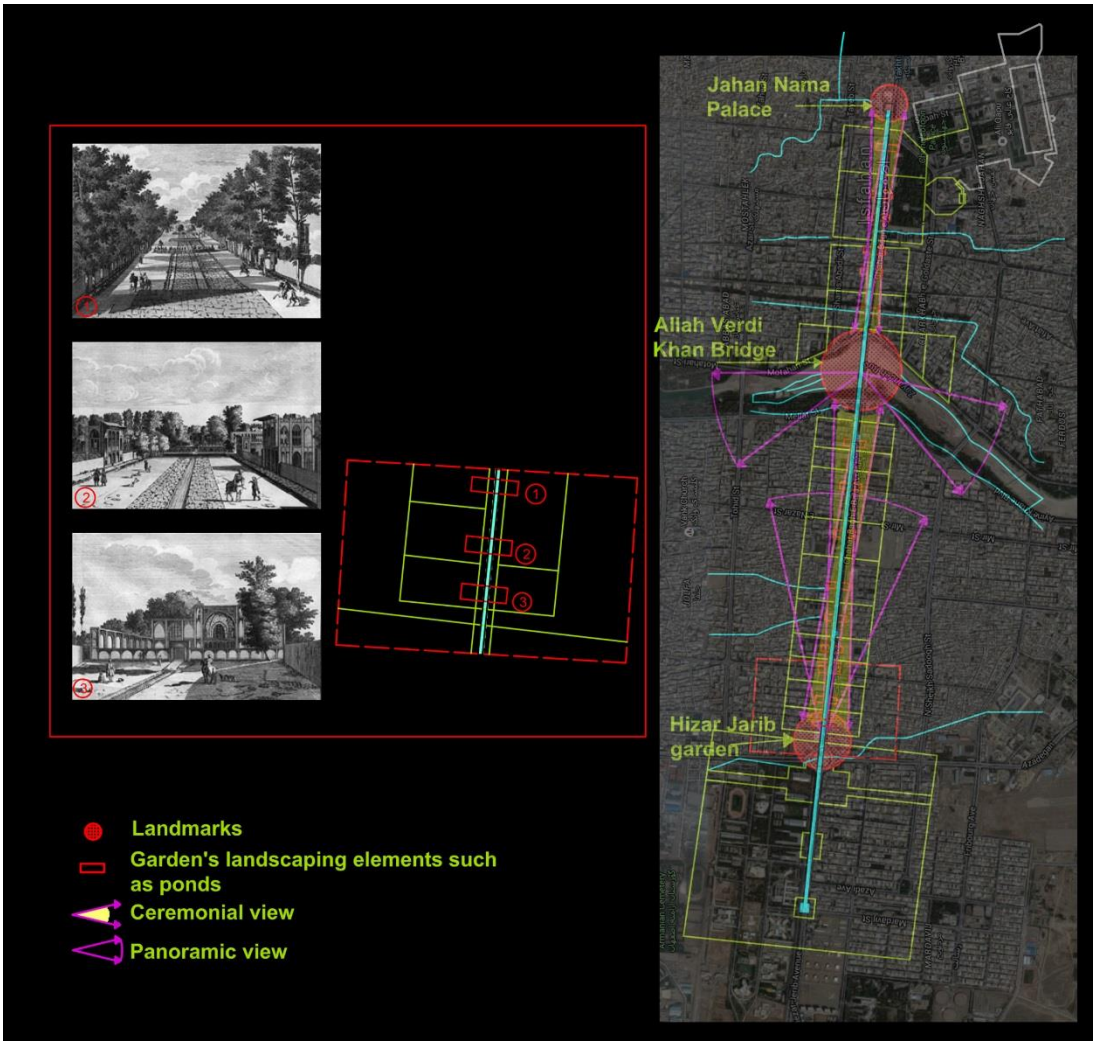

Figure 84: Redrawing of the visual analyses and serial views along the Chahar Bagh (Author 2015)

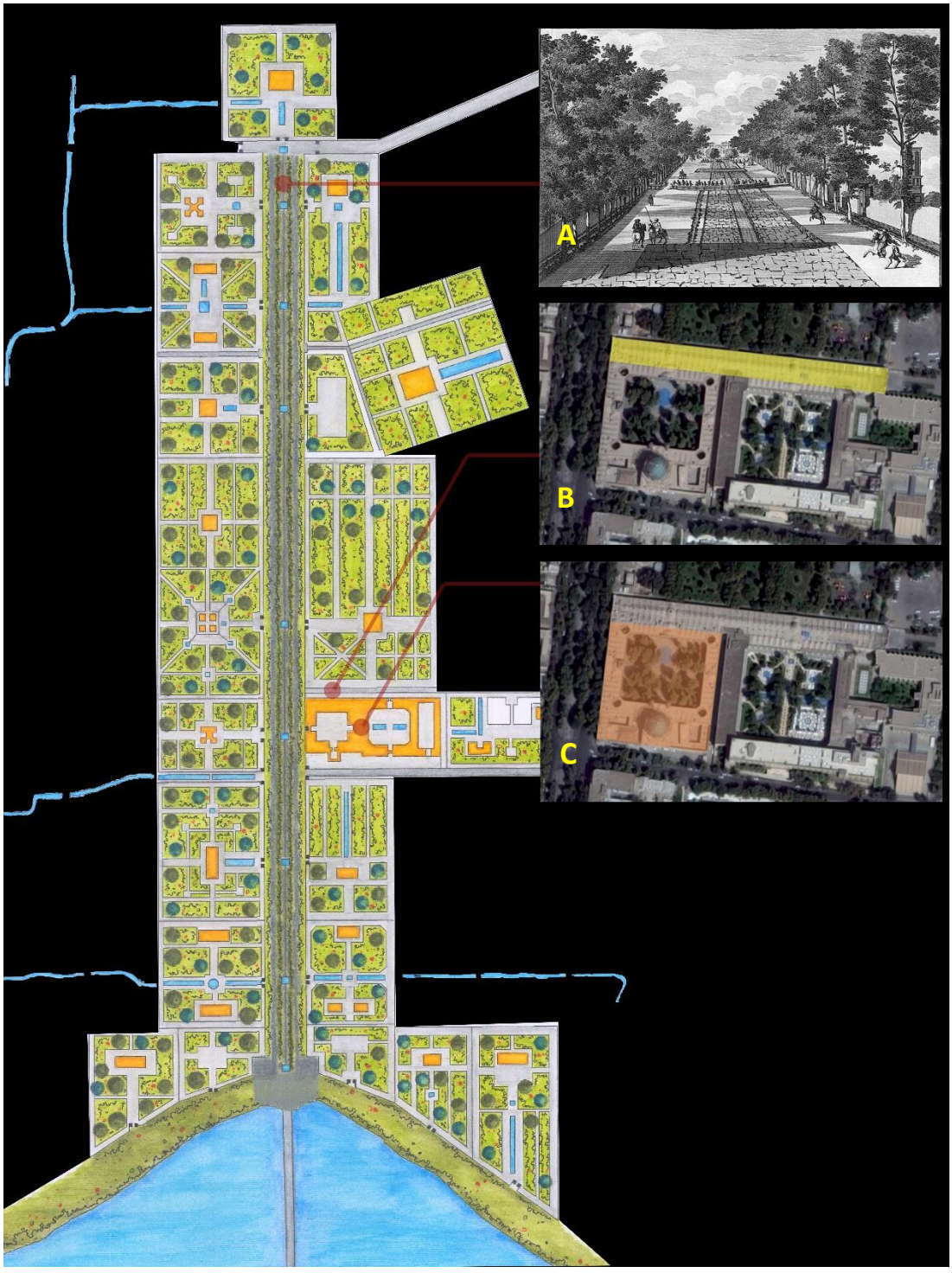

Figure 85: Analysis of the Chahar Bagh's features based on John Chardin's map drawing of the Avenue A: shows the location of the trees in Cornelis de Bruyn drawing of Chahar Bagh, B: the location and area of the Madreseh-e Chahar Bagh, C: The location and area of the Bazarche Boland along the Chahar Bagh (Author 2015)

7.4- A Comparison Between Isfahan Chahar Bagh and Mughal Gardens

The analysis of Timurid and Mughal gardens shows the emphasis of these gardens on a geometrical planning, in which symmetry about the main longitudinal axis as well as hierarchy created a new Chahar Bagh configuration.

The highlighted key factors in the configuration of Mughal gardens of India which influenced the Safavid Chahar Bagh Avenue can be identified as follows:

- Geometrical planning
- Symmetry,
- Hierarchy
- Proportional formulae expressed in triadic divisions
- Uniformity of shapes, ordered by hierarchy
- Selective use of natural features
- Symbolism (Koch 2005: 128-149).

Geometrical planning of the Chahar Bagh was based on the division of the land into a modular chessboard pattern, which led to the creation of 30 gardens (according to Kaempfer) along the main boulevard. Symmetry about the central walkway including the central stream in the layout of Chahar Bagh was inspired by the gardens of Timur in Herat (Figure 85). Symmetry in Chahar Bagh Avenue fits conceptually into the idea of universal harmony, which played a great role in the imperial ideology of Shah Abbas in the creation of Isfahan's Chahar Bagh Avenue. Heravi's created hierarchy in ordering the land - based on which the pavilion was located to its far end - was employed by Shah Abbas for the location of Jahan Nama pavilion in Chahar Bagh Boulevard. This hierarchy led to the configuration of several ponds along the central stream, flanked by walkways. This feature is the exact continuation of the Heravi layout of Chahar Bagh in Timurid and Mughal gardens. Stress on the representation of water - the life-giving aspect of gardens - in water ponds is the direct influence of Islamic gardens of Syria and Spain in Chahar Bagh. The Zayande Roud River - as part of the Chahar Bagh pattern - is recognised as the main natural water source, as are the Zarafashan River in Samarqand and the Jumna River in India, which both refer to the use of natural features.

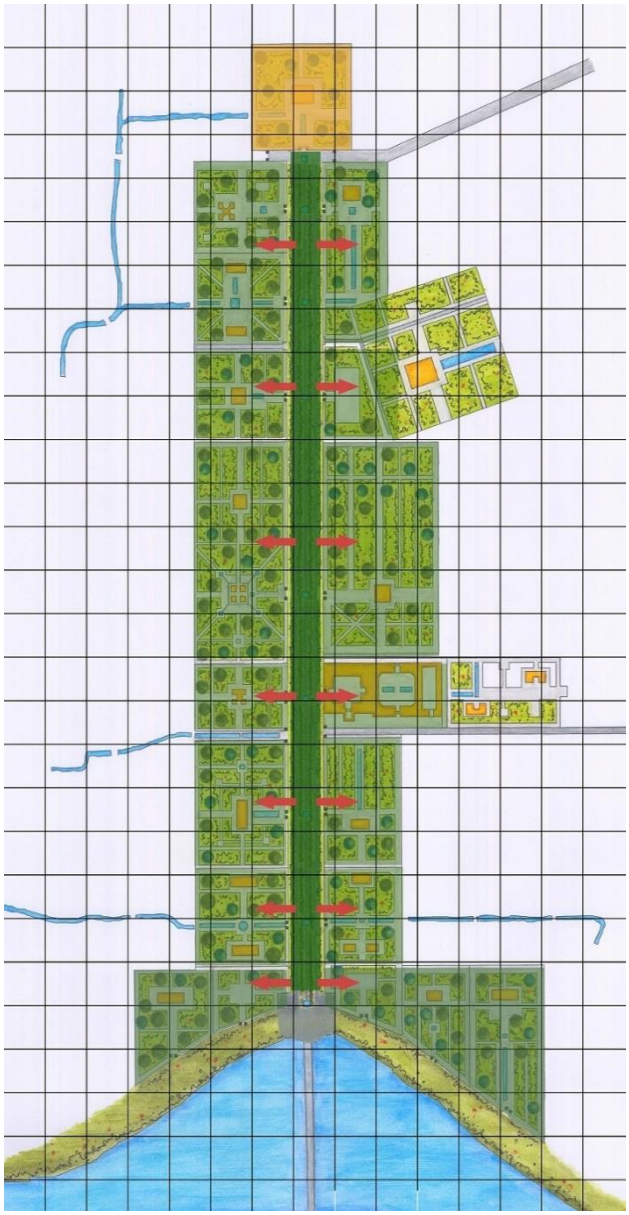

Figure 86: Diagrammatic representation of the symmetrical design of the Chahar Bagh, based on a modular chess board pattern. The emphasis on the Timurid garden hierarchy has been shown through the location highlighted in orange, the Jahan Nama palace (Author 2015)

Symbolism, as the paradisiacal image of gardens, was inspired by the Mughal gardens of India, particularly the gardens of the Taj and Shalimar. James Wescoat (1995: 23) stated that the "gardens of Mughal expressed a donation but not connotation of Islamic paradise", which means they achieved the form but not the meaning of Paradise gardens. She believes that this is also applicable to the gardens of Safavid. In supporting her assertion, it can be discussed that the Safavid gardens like Mughal gardens incorporated clear references to the imaginative realm of Quranic paradise from an aesthetic viewpoint. However, the semiotic intent of Shah

Abbas in the creation of such a masterpiece may also have had a pragmatic aim with roots in the earthly world, which is not acceptable by the eschatological implications of a religious Paradise. The names given to the Chahar Bagh surrounding gardens, which were found through the analysis of the plan of Isfahan by John Chardin, are possible proof for such a claim (Figure 87). Aside from the *Hasht Behesht* (the gardens of the eight paradises), other gardens are mostly named based on the political secular connections which invoke statues, function and size. *Bagh-i takht* (Garden of The Throne), *Bagh-i Hezar Jarib* (Garden of Thousand Acres), *Bagh-i Naqsh-i Jahan* (Garden of The World's Picture), *Bagh-i Khargah* (Garden of Donkey) and fruit tree gardens are the gardens covering both sides of Chahar Bagh Avenue. It is clear that some of them took their names after their function and some others after the size of the garden.

Figure 88 shows the influence of the different factors discussed so far in the formation of the Chahar Bagh Avenue in a diagram. The emergence of Islam and the heaven concept is included alongside the attention given to the Timurid pattern.

Figure 87: Redrawing of the Chahar Bagh's Avenue Gardens showing the continuity of the Chahar Bagh flanks through the multiplicity of gardens, influenced by the nomadic tradition of Timurid (Elaboration by author, 2013)

6-	Gardens of the Donkey	6- Gardens of the Vineyard
7-	Gardens of the Octagon	7- Gardens of the Dervish, Nemattollahi
8-	Gardens of the Nightingals	8- Gardens of the Dervish, Heidari
9-	Gardens of the Throne	9- Lion house
10-	Gardens of the Mulberries	10- Aviary

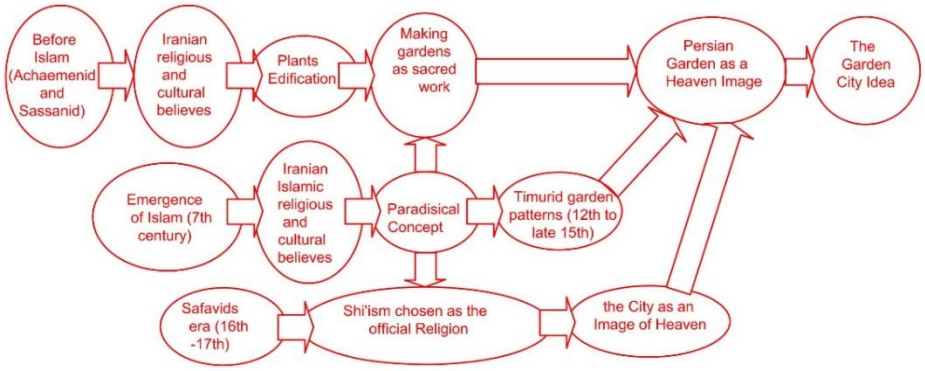

Figure 88: Diagram of the factors contributing in the formation of the Chahar Bagh Avenue (Author 2015)

The following section of this chapter mostly deals with the paradisiacal image of the gardens, which was emphasized in the Timurid gardens, followed by Mughals, and eventually reflected in the garden of Chahar Bagh during Safavid.

In addition to the major influences that the Timurid and Mughal gardens had on the concept of Chahar Bagh Avenue, Shah Abbas' intention in continuing Cyrus the Great's tradition of ancient Persian gardening can be understand through Kaempfer's quotation, expounded by Walcher as follows:

> …he was said to have directed the delineation with his own hands, which he proved himself as real and laudable descendant of the Great Cyrus, who as may be read in Xenophone , took the design of gardens as kingly occupation and who not seldomly planted plants and measured the rows of trees also with his own hands (Kaempfer [1684] quoted in Walcher 1997: 342).

The existence of a direct link between the creation of garden and kingship through the mapping, planning, and planting of Chahar Bagh's gardens have expressed Shah Abbas' political intention of physically manifesting his royal control and ownership of the territory.

7.5- Reflection of The Celestial Paradise in Chahar Bagh

Isfahan as a garden city was formed based on a Timurid *chahar bagh* layout and according to the Islamic concept of the "ideal city"- the Garden of Eden - which was taken into consideration under Shah Abbas' period. Gardens as parables of heaven were used as a composing element in designing the urban pattern of Isfahan under

Shah Abbas. The image of the city changed during his reign by virtue of water channels that ran all around the city and expanses of gardens as the major compositional elements along the Chahar Bagh Boulevard. Although the Chahar Bagh area as a royal garden on the scale of a city is more a reflection of the socio-political realm, control, organisation of land and cultural production above the religious-metaphysical relation to nature, individual gardens along the Chahar Bagh represented the celestial image of Paradise through green proportions, and a quadripartite division by streams, ponds and pavilion.

Iranian gardens have developed in a logical cycle from pre-Islamic to Islamic times and derived some of their Quranic notions of Paradise from pre-Islamic times based on Persian traditions, before Muslims had reached the land. Under the perception of Chahar Bagh, it is crucial to understand people's cultural beliefs contributing to the formation of this phenomenon. This means examining the meaning of 'garden' and its components from ancient Iranian beliefs as well as its similarities from the Islamic viewpoint. The Safavid created a theocratic state in which the king himself was considered invested directly by God with his political power through the Shi'ite state. At the same time, there were many Persian traditions, including the importance of plantation and gardening, as well as respect for water as the goddess of purification, which manifested themselves in the Safavid kingship. According to Walcher (1997:345), "the Quranic or Islamic paradise as a connection between both is not implausible due to the origin of paradise in Persian and Mesopotamian worldly gardens". Walcher believes that Isfahan and the area of Chahar Bagh were created based on the metaphysical world, "where paradise is the domain or abode of God, the abuse and ultimate source of might and authority" (Walcher 1997: 345).

Chahar Bagh Avenue and its surrounding gardens acted as a combined cultural, historical, and structural phenomenon in Isfahan: an area with an emphasis on water and trees as two fundamental elements providing a safe and peaceful environment for people. Therefore, studying the concept of the Paradise garden as an effective factor in the formation of Chahar Bagh is crucial as it represents the similarities between Islamic and Pre- Islamic beliefs in its various components.

7.5.1- The Concept of The Paradise Garden

Analysis of the garden of Islam in the previous chapters confirms that Islam consists of different social conditions in different regions. Islam was extended to Iran and Turkey from Mecca towards the north, and southward to the heart of Africa, where it reached to Spain. The Quran is a guide for Muslim people who lived in those areas. The garden as the symbol of the promised Paradise for the pious has been cited repeatedly in the Quran, where shade and water are two main ideal elements. "Gardens underneath of which water flow" is an expression, repeated more than thirty times in the Quran (Brooks 1987: 17). This explanation reflects the concept of ancient Persian *chahar bagh* gardens in Achaemenid; division of the area into four sections by the means of four water channels within a walled private enclosure (Surat Muhammad Chapter 15 and Surat Al- Ankabut Chapter 58). Another Quranic Paradise garden feature is the abundance of fruit trees and pavilions set among them. Figure 89 shows the Chahar Bagh's paradisiacal image in which pavilions sit in the middle of the palace gardens along the Avenue, surrounded by fruit trees planted in the four adjacent orchards (Surat Al-Rahman, Verses 46 to 76).

Like in pre-Islamic palace gardens, the Chahar Bagh pavilions were lavish places for relaxation of the owners and their friends. Considering the given information regarding the Paradise garden, each Paradise garden would contain fruit, trees, and pavilions, and was intended as a place for enjoyment and coolness. For nomadic people who experienced the reality of desert life, such a landscape was the image of the ultimate perfection of Paradise. Brooks (1987: 19). believes that the description of the Quranic Paradise garden may have drawn from the influence of the Damascus landscape, where the natural elements of gardens such as flowers, fountains, rivers, and singing birds were admired in the collection of Al-Nabulusi as follows:

> If you are in serious trouble and feeling uneasy,
> Settle in the land of Sham and live in Damascus.
> You will find your desire in it and all that you aspire for,
> You will even achieve renown and become eloquent in speech
> The spaciousness of al-Rabwa, the smooth wind whispers
> As it passes me by, creating joy as the wind and I met
> God, the foothill of al-Nayrabayn, how many
> Beauteous gardens full of splendour
> Al-Salihiyya, what a place, where
> The graves of righteous and prayerful reside

It has lofty palaces, richly ornamented
Appearing like stars in the sky (translation of the Al-Nabului, Burj Babil by Akkach quoted in Hafte 2012: 32-33)

Figure 89: Representing the paradisiacal image of Chahar Bagh (Rezaeian 2010: 127)

As in the Islamic artistic collection, the unity of style that is the mystical and universal quality of value was located in each design's component with different scales. This feature applied to the gardens where all aspects are locked together in a unified cosmic plan, and confirms the existence of an ever-present God. Such spatial organisation, which represents the linkages between the garden's components, provides a system for the individual that allows for both change and stability in the landscape design that offered inward-looking and outward appreciation (Brooks 1987: 21-24).

Of primary concern in Islamic gardens as discussed in the previous chapters is the sense of space which can be defined by the building materials. Mass is less important than volume; and the qualities of volume - such as light, decoration and coolness - are more important than anything else. This concept in garden design may have found inspiration in the ideal human condition emphasised in the Quran: less

concern about outward symbolism, more space for the inner soul to breathe and develop. Attaining to this inner peace, courtyard gardens were created in Syria, Spain and Morocco and became a permanent model for residential and religious constructions in not only the Islamic regions, but also wherever the urban conditions did not allow for the construction of gardens (Figure 90A). This concept could be seen as a metaphor in Islamic culture – that of the veil, where the extreme sense of privacy can be seen in the traditional Muslim woman behind her veil, which creates an external wall of infinite privacy (Brooks 1987: 21-24). The converse form of the courtyard garden is outwardly directed, or centrifugal-type, surrounded by a wall, as a feature, which responds to the demand for privacy (Figure 90B).

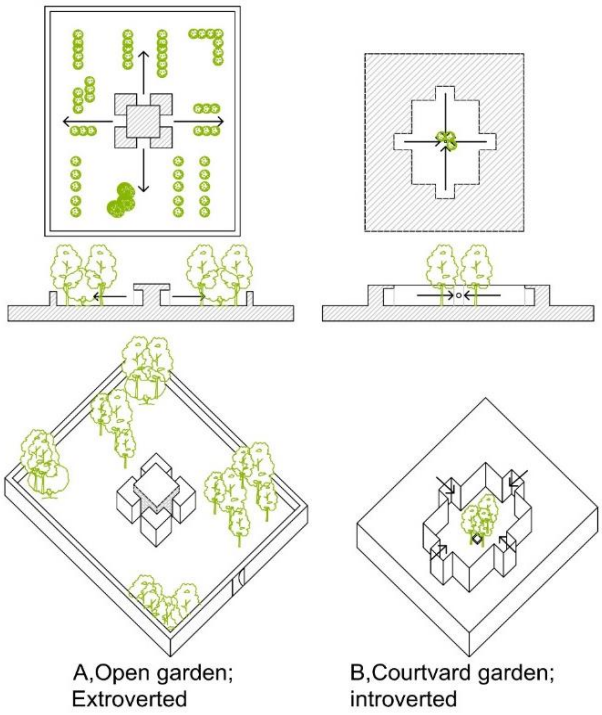

Figure 90: The concept of Paradise as the reflection of the cosmos, left-outward directed force flows out from the building into a natural Paradise; right – inner - directed force flow in to a fountain, generating the cycle of expansion and contraction by producing ever-widening ripples (After Shahcheraghi 2013)

The paradisiacal image of the gardens can be seen in most of the Chahar Bagh's surrounding palace gardens where the pavilion located at the intersection of perpendicular axes was surrounded by wall. This is typified in *Hasht Behisht* garden. The truly dynamic Paradise has been represented in both the plan and the central pavilion. The pavilion offered a centrifugal movement outwards along the pathways

– highlighted in red arrows in Figure 91- and a secondary inward-directed one through its four porches toward the central basin of water and its fountain - highlighted in blue arrows in Figure 91- which acted as the spiritual centre for the pavilion, representing the never-ending cycle of expansion and contraction.

The transitional area between the building and the outside space is another feature in the construction of the garden's pavilion which is very useful in long hot summers due to the connection it (the transitional area) offered to the residents between outside and inside. These transitional areas - known as *talar* (Figure 92) in Persian and *iwan* in Arabic – were reception areas for the palace building. As well as keeping the sun off those under the roof, this structure provided shade for the adjoining structures. Brooks (1987: 84-87) explains the *talar* as the locus of the soul moving between the garden as the spirit and the building as the body. Considering the definition of the purgatory provided by the Quran, as an intermediate state after death, the *talar* can be described as the transitional space between spiritual and terrestrial worlds. The best example of these connective spaces could be found in Alhambra, where visitors often find themselves in ambiguous settings which could be inside or outside. Because of the population growth and the lack of available city space the construction of palace gardens was not always possible. Therefore, the courtyard gardens, with their enclosed space reflecting the cosmos and hence the Paradise, became the most common garden type.

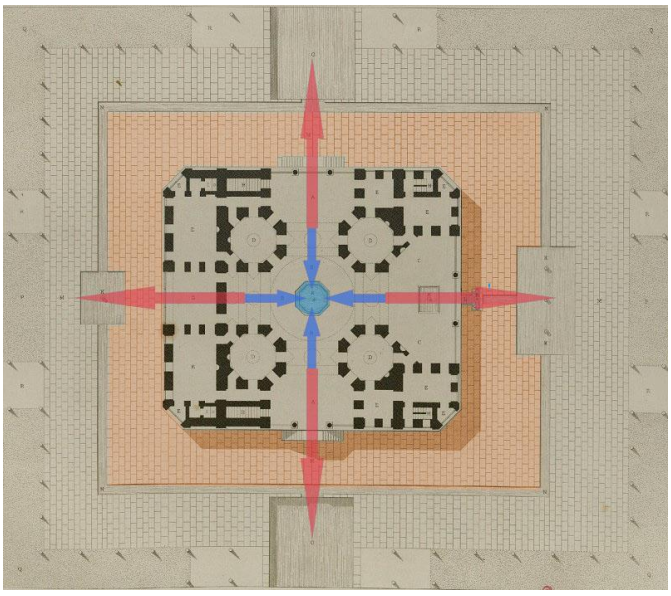

Figure 91: Analysing the centrifugal movement outwards along the pathways and inward toward the central basin feature in the plan of Hasht Behisht garden (Author 2015)

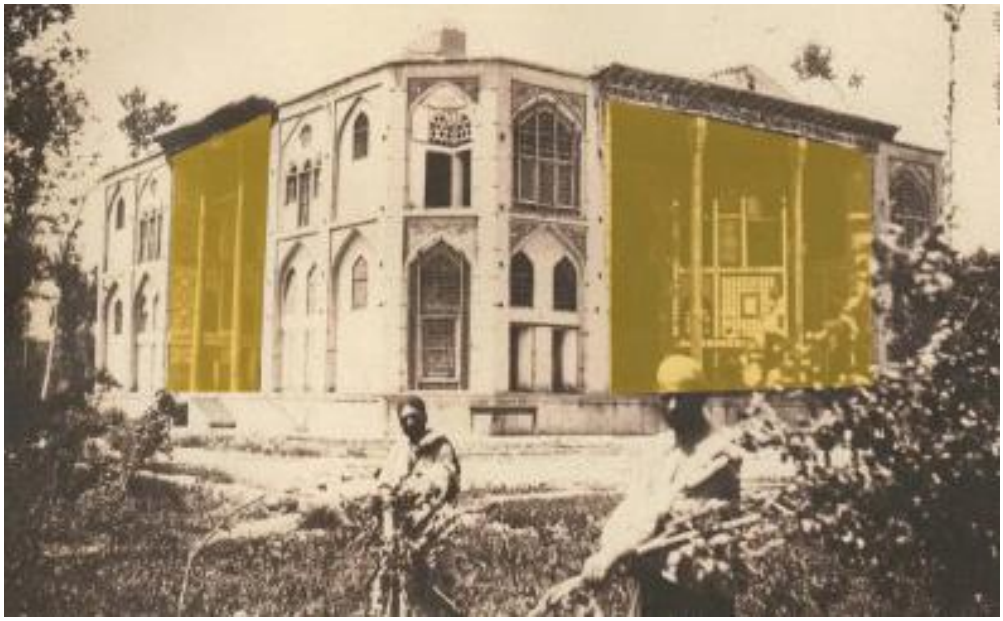

Figure 92: Talar in *Hasht Behesht*, highlighted in yellow, acts a transitional space between the interior and exterior and is crucial at both physical and spiritual level (After Holtzer 1975: 175)

Courtyard gardens were suitable solutions for hot and arid climates which were repeated in Mosques, Madrassahs, and Caravanserais. Order and harmony were the dominant features defined through geometry, colour, material, and even numbers. The combination of all the above elements created a completely relaxed place, conducive to contemplation, and devoid of tensions, within which the traditional central pool provides a centre for directing the creative imagination.

A comparative analysis of Islamic gardens with Isfahan's Chahar Bagh Avenue shows that the metaphysics of Islamic thought and its application to the traditional gardens of Islamic time are connecting Isfahan to the Islamic gardens of the Middle East, the West, and Central Asia. Although they are different in scale, usage, age, structure and physical elements, they were built by Muslims or for Muslim use, which unifies the regions of Islam.

7.6- The Reflection of Iranian Beliefs in Chahar Bagh

Based on Quranic expressions, Paradise was the place where man started his life. What has been disappearing over time is the strong relationship between man and nature while nature has always been as a cradle for the man. In this regard, Shahidi stated:

> Nature is a rank of the whole hierarchy of existence in Iranian philosophy of life which understanding it is considered as a step of knowledge. The set of two factors; ideology and culture, give different forms of artistic works among which the art of garden design which inspired from the relationship between natural and Iranian philosophy of life and culture is highlighted. The Iranian beliefs come from their ideological beliefs and in turn, create a divine and heavenly philosophy of life (2010: 133).

Persian gardens were created based on a quadrilateral geometry, mostly square or rectangle, in which the interior space was designed based upon principles of Mandala patterns along with the division of water in streams within the garden. Considering the exploration of David Stronach on Pasargadae, ancient Persian gardens incorporated sacred elements of the old Persian garden - water, wind, soil and fire - as the fundamental Persian trait in their geometry. Persians always retained their ancient love for tree planting as the fifth sacred element of Achaemenid (Bemanian et al 2006: 104-112).

Since creating a green area without water in the dry climate of Iran is not conceivable, water as the messenger of light and purity is the main reason why Persian gardens came into existence for the first time in ancient Iran. Water was a very influential factor both spiritually and mentally. Characteristics such as freshness, cleanliness, brightness, stillness, prosperity and light reflection made water the key feature in Persian art and architecture. Anahita, the goddess of water in the Zoroastrian religion, which always existed in Iranian beliefs, created a Paradise in the heart of the desert by dividing the water into four areas on the earth (Ansari et al 2008: 107). During the Sassanid period, Anahita was believed to be the goddess of water under Zoroastrianism, which was still the official religion of Iran.

Water in Persian beliefs is conceived as follows: 1) water as the holy myth, 2) water as the fertility myth, and 3) water as the rebellious myth. The Paradise in Persian beliefs was assumed as a place that introduces the highest level of purity due to the flow of water. With regard to this fact, Iranians introduced huge amounts of water in their gardens by designing different types of streams, pools and ponds, giving the highest level of liveliness, freshness and purity to the garden (*ibid*). Although Zoroastrians respect water as the main source of life and use it for washing their face and hands before performing their religious duty five times a day, respect for water as the most important means of cleaning was an attitude for the followers of Islam (Ansari et al 2008: 107).

During the Islamic times, architecture tried to consciously use the logic and technology of the time in order to control water and make it more abundant, an example of which was given in the earlier discussion on the Islamic gardens of Spain (refer to Chapter 5). As analysed in relation to the evolution of gardens after the arrival of Islam, water has been drawn into ordered geometric shapes. It appeared in the middle of gardens and palaces, courtyards, Madrassahs, and Mosques as the symbol of life and death, and acted as a bridge between the terrestrial and the metaphysical worlds. The purification of water is an allegory of the continuous birth of creation and brings a sense of new life. The pools to the centre of the gardens are considered as the allegory of the Quranic paradise particularly when they reflected the image of the building in their shimmering surface. Water indicates the need for attention to clarity and transparency, which is the parable of Paradise mentioned in the Quran (Tahmouri & Hoseinrazavi 2013: 406-416).

The use of ponds and pools were also extremely valuable for climate mitigation reasons in hot and arid climates. Many of the gardens were significant as they offered a ritual aspect beside the aesthetic aspect. The pools at the entrance of the Mosques are the symbol of soul purification which is required as an entrance to the pure and transparent world. The presence of big pools can be seen in the Mosque and Madrassah of Chahar Bagh in Isfahan. The existence of such big pools was not for religious ablutions , but for symbolic and ritual aspects. In such context it should be highlighted that this tradition developed just in the Mosques of Iran and cannot be seen in any other Mosques in Muslim lands. Therefore, it could be considered as an Iranian architectural principle (Tahmouri & Hoseinrazavi 2013: 406-416). Many places in the past were built according to the type and location of the water, which stresses the importance of water in Iranian beliefs. Water sources are divided into categories of natural - lakes, springs, waterfalls, rivers, and artificial - ponds, artificial streams, and pools. Over thousands of years, the Zayande Roud River acted as a natural source of water for the hot and arid climate of Isfahan and provided a recreational place for the people. The two main bridges of Khajou and Allah Verdi *khan* were special places for holding ceremonies over the River during the Safavid epoch (Figure 93) (Tahmouri & Hoseinrazavi 2013: 406-416).

Consideration of natural elements was not possible everywhere; it was therefore necessary to design and construct various elements in order to preserve and maintain water for different purposes, including visual pleasure, and coolness, and even

ceremonial or ritual purposes within the city. Pools, ponds, streams and baths were some of the mentioned elements which were considered as artificial sources of water and transferred from pre-Islamic and Islamic gardens to the urban layout of Chahar Bagh Avenue. Water as a fluid element in Iranian architecture plays a crucial role in visual, aural, and tactile values of the space and it helps the cognitive perceptions of a person relating to physical presentations (Tahmouri & Hoseinrazavi 2013: 406-416). Remnants at Pasargadae depict water features as the creator of space order. This manifests itself in the positioning of architecture towards water and finding peace beside it as well as controlling its nature by giving an order to it. Giving order to the land and nature through water was followed by Islamic architecture and landscape design. Water was considered as one of the four elements of the universe along with earth, fire, and air in Iranian beliefs (*Ibid*).

Figure 93: Kahju Bridge over Zayande Roud River in Isfahan as a place used for water spraying celebration during Safavid (Photo taken by author Summer 2014)

The soil as the second component in Ancient Iranian cultural beliefs is the symbol of earth which represents the land as an essential factor for creation of the gardens. In ancient Persian gardens, there has always been a place for fire as fire plays another crucial role in Persian beliefs as the second agent of ritual purity after water. The aerial photos of the Firozabad, depicting the fire temple minaret, imply that this temple was located in the crossing point of two perpendicular axes in the centre of the garden which was irrigated by a network of water streams. Wind as the last element provides the garden's eight-cornered pavilion with considerable ventilation.

The eight sides of the pavilion were generated from the rotation of two squares over each other, named *Hasht Behisht* (Eight Paradise) (Bemanian et al 2006: 104-112).
In Acheamenid thoughts, plants and plantation were considered as additional sacred elements. Each plant represented a unique symbol in Persian gardens. Therefore, a Persian garden is always full of different forms of greenery symbolising a range of Iranian beliefs. In Iranian culture, the recommended keys to enter the Paradise are cultivation of trees and construction of gardens, while the uprooting or cutting down of trees is considered ominous. Throughout the Sassanid dynasty people followed this tradition and later gardens represented the same concepts within different built forms. The specific implication behind each kind of plant has been considered in Table 3:

Table 3: Table: Symbol of garden trees in Persian gardens (Elaboration by author 2013)

Name of the tree	**Symbol**	**Usage**
Cypress	Death and funeral	Creating shadow, luxuriant, green and thriving throughout the year
Sycamore Tree	Glory and pride	Creating shadow
Pine Tree	Stability and determination	Green and thriving during the year
Mulberry Tree	Gravity	Edible usage
Fig Tree	Fertility and existence	Edible usage
Grapevine	Wisdom	Edible usage
Apple Tree	Love, peace, cognition	Edible usage
pear Tree	Hope and health	Edible usage
Cherry Tree	Creation of Man	Edible usage
Peach Tree	Angel's Fruit and Repulsion of evil	Edible usage
Plum Tree	Loyalty and purity, life	Edible usage
hawthorn	Angel's plant and Repulsion of evil	Edible usage
Palm	Happiness and lust	Edible usage

7.7- Similarities Between Iranian and Islamic Beliefs in The Structure of Islamic Persian Gardens

As in the pre-Islamic times, Iranians continued their interest in the creation of gardens during the Islamic period. The one aspect of Islam, which is different from the earlier religion of the Persians, was the belief in the heaven or Paradise as a garden consists of a water stream, sheltered pavilion, fruit trees and flowers. Quran states that the Judgment Day will take place "in gardens of pleasure": those who pass the judgement will enter into the gardens, continually verdant, cooled by springs, fountain, and shaded by trees. Two kinds of fruits can be found in each garden: dates and pomegranates. "Within the gardens are beds with linings of brocade, the fruit of the two gardens within reach to cull, wherein maids of modest glances, virgins like rubies and pearls are". Gothein believes that "Every sensuous delight makes the garden a paradise for the Mohammedan" (Gothein 1966: 55).

Surat Ash-Shuraá Chapter 22 of the Quran points to the Rozzat Jannat, where those who believe and do good works will dwell forever in flowering meadows of the gardens, having what they wish from their Lord. Regarding the interpretation of this world in Majmaʿ al-bayan li-ʿulum al-Qur'an, *rozzat* means green and fresh while *jannat* refers to a land surrounded by trees. Therefore, Rozzat-al-Jannat means gardens full of trees. Moreover, those who have believed and done righteous deeds will be in lush regions of the gardens [in Paradise] having whatever they will in the presence of their Lord. That is what the great bounty (Paradise) is about.

The Lord in Surat Muhammad Chapter 15 in the description of the Paradise said;

> Wherein are rivers of water unaltered, rivers of milk the flavor of which never changes, rivers of wine delicious to those who drink, and rivers of purified honey, in which they will have from all [kinds of] fruits and forgiveness from their Lord (Pickthall 2011: 234).

Furthermore, the Persian poet, Omar Khayyam pointed to the rivers of Paradise in one of his quatrains, where he said:

گویند بهشت و حورعین خواهد بود
آنجا می و شیر و انگبین خواهد بود
گر ما می و معشوق گزیدیم چه باک
چون عاقبت کار چنین خواهد بود
(From Kevorkian and Sicre 1998: 207)

In translation:

> They say in heaven are beautiful lovers
> Sweet taste of wine in the air hovers
> Fear not if succumbed to same earthy powers
> In the end the same, one discovers
> (translated by Shahriai 2009).

In Surat Al-`Ankabut, Chapter 58 points to Al-Jannat Ghorafa (Paradise pavilions) and promises that,

> Those who have believed and done righteous deeds will surely assign to them of paradise [elevated] chambers beneath which rivers flow, wherein they abide eternally. Excellent is the reward of the [righteous] workers (Pickthall 2011: 234).

Ghorfeh in the Persian thesaurus means a very luxurious house placed on a platform beneath which rivers flow, pour into a big pond in front of the pavilion and spread throughout the garden. Comparing the basic concept of a Persian garden with what has been explained in Surat Al-Ankabut, many researchers and garden experts believe that Persian gardens echo the Paradise (Khansari et al 2004). The fourfold symbolic division of the garden by running water appears in countless Islamic gardens. In funeral Islamic gardens, this division is particularly common when a tomb is at the centre, for then the four streams seem to flow from beneath the tomb, indicating the destiny in Paradise of the person buried there. The tomb of Akbar (1780-1800) [57] in Sikandra, Agra is an example of such design.

Considering the examples of the gardens of Eden described in the Quran, it is plausible that Paradise in the Quran is an enclosure, supported by gates and gatekeepers and where the faithful enjoy immortality. There are beautiful boys and girls to care for them once they have entered. There is not scorching heat, nor the biting cold, and interminable fountains refresh the air. Shading is provided by several trees for people to sit under and eat from the clusters of fruits hanging over them. In addition to explaining the physical features of the garden, these descriptions emphasise a place or possibly a public space for people to spend time, relax and

[57] The tomb of Akbar, fifteen miles from Agra, is a noble edifice of richly tinted sandstone and white marble, combining beauty, strength, and majesty. This was, in fact, the style of architecture that Akbar loved. In addition to everything else, this emperor built the most imposing structures to be found in India, but not the most beautiful structures as these were the work of Shah Jehan, the builder of the Taj Mahal.

enjoy. A summary of the similarities between the Quranic depiction of garden and Persian garden discussed so far is set out in the two following tables:

Table 4: Table of the comparison between the Quranic depiction of 'garden' and its elements with the Persian garden

Comparison between the Quranic depiction of 'garden' with the Persian garden			
	Quranic depictions	Address in the Quran	Similar features in the Persian garden
1	Pavilions with streams flowing beneath them	Surat Zomar Chapter 20	Persian garden's pavilions placed above the water source to irrigate the garden
2	Gardens with streams below the trees	Surat Vaghee Chapter 31	Water flow below trees
3	Four streams of water, milk, honey and wine	Surat Mohammad Chapter 15	Two streams over stream, creating four sections within the garden
4	Paradise pools named *Kowsar*	Surat Kowsar Chapter 1	Ponds, pools and fountains
5	Providing a peaceful environment by shading trees such as *Tuba*[58]	Surat Raed Chapter 29	Shading feature following the features of plantation order
6	Describing the pleasant weather condition in Paradise	Surat Aldahr Chapter 13	Graceful weather in the heart of desert
7	Paradise enclosed by wall and gates	Surat Alhadid Chapter 13	Wall around walled gardens and entrance gates providing a private area

[58] A tree that Muslims believe grows in Jannat, or Islamic heaven.

Table 5: Design parameters of Iranian garden (Elaboration by author 2014)

Elements and structure		Cultural aspects		Environmental aspects	Design features
		Before Islam	After Islam		
structure	Plan and Location	Sanctification of the four cardinal points	*Jannato arzeha assamavato valarz* (the vastness of the janat surround the nirvana)	-The planting order -The water distribution order	-Sample of the Chahar Bagh -Extensive perspective view -Squarely distance -Direction of planting -Rectangle form
Original elements	water	- Water goddess	-Rivers of Paradise	-Providing coolness and moisture in the desert region -Making tranquility	-Steep pools and water fall in step falls -Fountain -Water jet -pool -Subterranean canal
	Soil & Earth	-Eternal inanimate	-Human creation from soil	-Making fertile soil	- Suitable soli - Suitable slope -Suitable perspective
	wind	-Sacred element	-Spirit fluids in the heavenly parlours	-Ventilating	-*Hasht Behesht* (eight paradise)
	Fire	-God of the sun	-God	-Release from darkness	-Fire temple
	plant	-Eternal tree -Tree of life -Water lily -Symbolisation	-*Rozatoaljanat* (Paradise garden) Garden of heaven	-In construction -As a meal -Medicinal and chemical property -Fragrance Casting a shadow -Keeping away the obstructive insects	-Cypress, poplar, fruit trees (orchard), rose, and oleander flower

7.8- Conclusion

Analysing the influence of pre-Islamic and Islamic gardens on the layout of the Safavid Cahar Bagh demonstrated how the strong inspiration of the Avenue was drawn from the Timurid garden and the urban pattern of Herat. Order as one of the key components in analysing the garden layouts experienced some changes in geometry and hierarchy. The geometry of the land was taken from the Pasargadae gardens by Islamic landscape designers of Syria, Spain and Morocco and applied to the gardens of Timur and Mughal India. In the fifteenth century this was reflected in the palace gardens of the Safavid which flanked the Chahar Bagh Boulevard. On a bigger scale, Chahar Bagh Avenue followed the Timurid and Mughal Chahar Bagh, which was the result of a hierarchical transformation under the Timurid dynasty. Innovation in hierarchy happened for the first time in the Samarqand gardens of Bagh-I Dawlatabad, and was followed by the Herat gardens when Heravi, who was the Ershad al-Zera'a, introduced a new layout for the *chahar bagh* garden. In his pattern the location of the pavilion moved to the far end of the garden where the main pool in front of the pavilion was fed by the central water channel, flanked by slightly elevated walkways. Emphasis on the central axis introduced the symmetry along the longitudinal axis in the geometry as a dominant feature in the layout of Shah Abbas Chahar Bagh in Isfahan.

Elevated walkways in Herat gardens was the innovation of Syrian and Spanish gardens which continued in Timurid *chahar bagh*. Highlighting the element of water represented in ponds, pools and fountains, Chahar Bagh garden depicted a variety of large cisterns along the boulevard, in front of each garden, and consisted of the Islamic innovation of water jet to emphasise the aesthetic aspect of water (refer to Chapter 3). Respect for water in Ancient Persia was represented by pools at the intersection of two perpendicular axes. Islamic beliefs in water as the symbol of purity led to the creation of decorative pools and fountains. The building of the Jahan Nama pavilion at the beginning of - and palaces along - the Boulevard implies that Chahar Bagh reflected both Timurid and Achaemenid building elements in its layout. The plantation of sycamores along the central walkway, and palace gardens full of trees along the Chahar Bagh Avenue explained the great emphasis of pre-Islamic and Islamic gardens on the sanctity of the cultivation of plants with deep roots in Avesta, the Zoroastrian holy book. Persians have respected trees not just because of their

materialistic benefits, but also due to the cultural beliefs discussed previously. Furthermore, in the Quran, Paradise is described as a garden full of trees and flowers, which shows the spiritual insights, and symbolic expression before Islam; and the explanation of Paradise in the Quran corresponds to the description of one such garden.

One could also say in conclusion that the pre-Islamic and Islamic gardens translated the philosophical relationship between man and nature. By finding the precise relationship among the factors involved in Persian gardens within the structure of the Chahar Bagh in Isfahan, each element dictates this Avenue in harmony with and sets out the cosmic rules and eternity for the city of Isfahan. In the design of the Persian gardens, a series of fundamentals were employed to create a suitable and beautiful link between the human needs in all its physical and metaphysical dimensions. Although gardens and the following fundamentals evolved over centuries, their continuity through the sophisticated projection of the image of the universe during ancient Persia and an expression of Quranic Garden of Paradise from Islamic times until now has been retained over time.

It can be posited that the cultural tradition remains intact over the span of time in various forms and at the scale of urban design and architecture such as the creation of garden cities, garden houses and so on (ICHHTO 2010: 50).

The beauty of the gardens was important to Muslims to show the reflection of God, their beloved creator. Describing the image of 'garden' was used by some of the poets to describe their feeling towards a beloved:

> The trees are engaged in ritual prayer and the birds in
> Signing the litany,
> The violet is bent down in prostration (Gurney[59] quoted in Brooks 1987: 19).

Not only poets, but also all artists included references to the gardens in their art production in which the arrangement of the Chahar Bagh with either a pool or a pavilion at its centre or a great landscape garden with a series of pavilions is evident[60]. The Quran's account of Paradise in its mundane form as a reflection of

[59] Gurney, D.F., A little book of quiet, London, country life and George newness, 1915.

[60] An analysis of Persian carpet and miniatures as two main expressions of Safavid art is included in the next chapter.

Persian gardens precedes Islam. Such symbolic interpretation of Paradise gardens has influenced the lives of Iranian people as much as it has also shaped their intangible heritage such as literature and the arts (poetry, carpet weaving, and miniatures, among other features). Figure 94 shows the Paradise garden diagram which was influenced by the ancient Persian Pairidaeza.

With the aim of highlighting the symbolic interpretation of paradise in Iranian art as well as depicting the influence of the Persian garden in Iranian art, the next chapter proposes an analysis of the miniatures and carpets as two important expressions of Persian art.

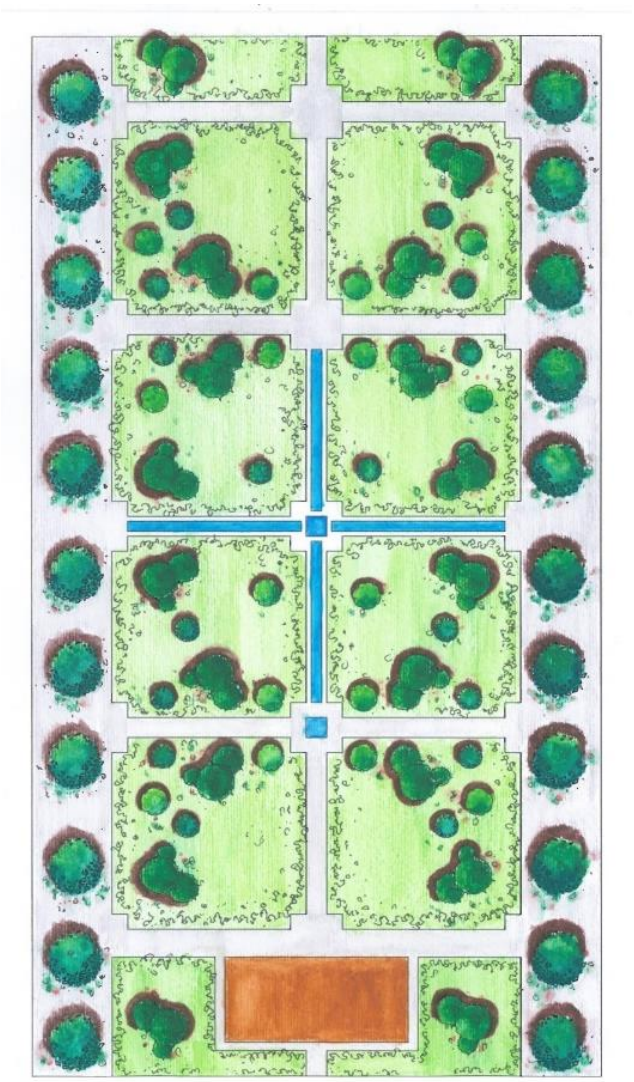

Figure 94: Paradise garden diagram after Turner 2009, (Author 2014)

Chahar Bagh in Iranian Art

8.1- Introduction

8.2- The Relationship Between Carpets and Garden Making

8.2.1- Golestan Carpets

8.2.2- Kheshty (Adobe design Carpet), Toranj and Lachak Torang, and Golafshan carpet

8.2.3- Divare Bagh (Garden Wall) Carpets

8.2.4- Mihrab (Sanctuary) Carpets

8.3- Persian Miniatures

8.3.1- Miniatures, representing the imaginary gardens

8.3.2- Miniatures, signify a complete image of gardens

8.3.3- Miniatures, characterizing some aspects of the gardens

8.4- Conclusion

Chapter 8: Chahar Bagh in Iranian Art

8.1- Introduction

Chahar Bagh Boulevard with its surrounding gardens can be considered a very large garden with a powerful architectural image expressing a unique identity for Isfahan's urban design from the fifteenth century onward. As discussed in Chapter 7, Chahar Bagh Avenue was inspired by pre-Islamic and Islamic gardens in its concept and layout. The continuation of these influences can be seen in Iranian art and literature including poetry, carpet weaving, and miniatures as the language of Persian gardens. Therefore, it is necessary to study some aspects of garden evolution in carpets and miniatures to show how the influences of pre-Islamic and Islamic gardens can be read in Iranian art. The aim of this chapter is to collect and offer supportive iconographic material through the analysis of carpets and miniatures, mainly dating back to the sixteenth and seventeenth centuries, to show the continuation of the art of garden design in Iranian art. This allows us to trace the prevalence of possible aspects and components of the paradisiacal gardens in Iranian art – such as order, elements, plantation and symbolic interpretation, which may have offered a cultural and ideological backdrop for the creation of the Safavid gardens.

8.2- The Relationship Between Carpets and Garden Making

In Foucault's view, "Persian carpets are movable gardens within the frame of time and space (Foucault 1967: 5)". Another quotation from Michel Foucault about the relationship between the Persian garden and Persian carpets succinctly introduces the importance of Persian rugs in the design of Persian *chahar bagh's* garden:

> The traditional garden of the Persians was sacred space that was supposed to bring together inside its rectangle for parts representing the four parts of the world, with a space still more sacred than the others that were like an umbilicus, the novel of the world at its center (the basin and water fountain were here); and all the vegetation of the garden was supposed to come together in this space, in this sort of microcosm. As for carpets, they were originally reproductions of gardens (the garden is a rug onto which the whole world comes to enact its symbolic perfection, and the rug is sort of garden that can move across space). The garden is the smallest parcel of the world and then it is the totality of the world. The garden has been a sort of happy, universalizing

> heterotopia since the beginnings of antiquity (our modern zoological gardens spring from that source) (Foucault 1967: 6).

Studying Persian carpets is helpful in identifying key ideologies behind the creation of Persian gardens particularly those related to the Safavid epoch. In other words, 'carpet' with all its allegory and symbolism represents Iranian culture and beliefs in the creation of the gardens in a two-dimensional world. Although Dadgar[61] (2006: 30) believes that (in translation), "Persian garden is the most popular subject matter for the study of Persian carpets motifs", I believe that the carpet motifs are the most popular subject for the study of the *chahar bagh* gardens.

An analysis of the evolution of Persian gardens after the advent of Islam from Persia to the Middle East, from Spain to North Africa, from Central Asia to the Mughals in India, and finally the reflection of this evolution on the Safavid Chahar Bagh, shows the fundamental role of gardens in the cultural environment of people, especially those of Persia and India. The love for gardens introduced the theme of garden carpets as a substitute for the real garden. The existence of the spring carpet of *Khusraw* (the Baharestan Carpet) in the great hall of Ctesiphon for Sasanian Shahanshah Khusraw Anushiruwan (531 -579) shows the ancient tradition of carpet making in Iran.

The term *spring* given to this carpet is due to its special design which represented cultivated green fields in which were flowering spring plants and fruits. I have analysed this carpet and its design in detail within the *Golistan* carpets category in the next section. The date of this carpet confirms that the design of the Paradise garden carpet as the terrestrial expression of paradise existed from the pre-Islamic age. There are numerous quotations for gardens in the Quran, which have already been mentioned in the previous chapter, among which Surat Al-Rahman, Chapters 46 to 76 assuredly gave an impetus to the creating of gardens:

> 46 and for him who fears to stand before his lord are two gardens
> 48 having in the various kinds
> 50 in both of them are two fountains
> 52 in both of them are two pairs of every fruit

[61] He is one of the most famous Persian scholars in the field of Persian carpets and the head of Iran's Carpet Museum.

54 reclining on beds, the inner coverings of which are of silk brocade; and the fruit of two gardens shall be within reach
……
62 and besides these two are two (other) gardens
64 dark green with foliage
66 in both of them are two abundant springs
68 in both are fruits, palms, and pomegranates
70 in them are good things, beautiful ones
72 pure ones confined to the pavilions
74 man has not touched them before them nor jinni
76 reclining on green cushions and beautiful carpets (Pickthall 2011: 316-317).

Above is a reference to a carpet or a material with similar use, which is related to the Paradise garden. Furthermore, this is another confirmation of the existence of the garden-making tradition in the very early Islamic era where the traces of water streams for irrigation have been found under the Omayyad epoch in Samarra (Turner 2005: 81-107). Inadequate information, as well as the absence of a reliable inventory of Persian carpets from different epochs, make this analysis challenging. Therefore, I only follow initial lines of investigation, which subsequent accurate studies could perhaps extend and confirm.

Persian carpets, which depicted the complete image of gardens including order, elements and planting, are known as garden carpets and are divided into four groups: *Golistan* - called *Golzar* in the Safavid time -; *Kheshty* (Adobe design Carpet); *Toranj & Lachak Torang,* and *Golafshan* carpets (Hosoori 1998: 247-259). The second category of garden carpets includes those which represented the permanent elements of gardens, such as walls, entrances, and walkways among other features. The two main types in this category are garden wall carpets and sanctuary carpets.

8.2.1- Golestan Carpets

The *Golestan* carpets mostly show a wider border including several borders (generally seven) full of flowers, birds, and trees. A network of irrigation systems and ponds divide their field into 4, 6, and 8 quarters. Each section includes four or six segments within, and all the divisions are based on multiples of 6, 12 and 24. Water flows are represented in blue with wavy lines containing fish and birds (Hosoori 1998: 247-259). In other words, in the *Golestan* design, the main border of the carpet represents the garden's wall and all the features of the Persian gardens such as flowers, plants, trees and birds, which are shown as abstract elements within

this enclosure. Herdeg (1990:49) believes that the Persian carpet is a two-dimensional art within which a three-dimensional content has been depicted. Although studies in *Golestan* garden carpets included both two perpendicular axes and three axes in the pattern of Persian gardens, nevertheless, they mostly focused on the *chahar bagh* pattern (perpendicular axes pattern) as the result of Chahar Bagh prevalence after the Safavid era.

The following images illustrate the analysis of two types of garden carpets, one from the Victoria and Albert Museum (1700) (Figure 95), showing two perpendicular axes and one from Glasgow Museum, a three-axes garden carpet (17th century) (Figure 96)[62]. At the centre of each is a dazzling elaborate floral design including a square and a circle, reinforced by eight main flowers supported by eight smaller ones, which occupy the outer area of the design. A diversity of flowers, leaves and stems is given order by its inner border. This central design in garden carpets usually represents the canopied platform or open-sided pavilion, which the ruler would erect over the intersection of the waterways.

Figure 97 shows a Persian miniature in which such central motif can be seen in the carpets that Persian and Mughal rulers would take out into the garden to lay on the ground or to use as a canopy or shelter against the sun. This also confirms that the tradition of carpet making has a longer background in all Iranian art forms, with multiple borders of trees and flowers representing the multiple walls of the celestial Paradise, which protect the enclosure from the demon (Hosoori 1998: 249). The depiction of four sycamore trees at the centre-corners of the carpet symbolised the shade-giving Tuba tree in the Quran. The rectangular shape of this carpet, which is dominated by three large water channels shaping as a capital "H", focuses on a pond to the centre of the central horizontal axis. Unusual and rare flowers and plants flanking the canals (Figure 98) characterise the rest of the carpet field.

Many scholars in the field of carpet design such as Heberg and Gothein (1966) believe that carpet gardens were perpetuated into the Safavid era from the Sassanid period. When Arabs conquered Ctesiphon, among many of the admired treasures was a truly enormous garden carpet made for the Sassanid King *Khousraw*; this was

[62] Garden carpet in Glasgow Museum is one of the three most important carpet gardens in the world. One of these three is in Jaipur Museum in India with bigger scale and the other one is in Vienna Museum.

too heavy for the Persians to carry away with them, therefore it was taken by the Arabs and sent to Omar in Medina (Gothein 1966: 27-170).

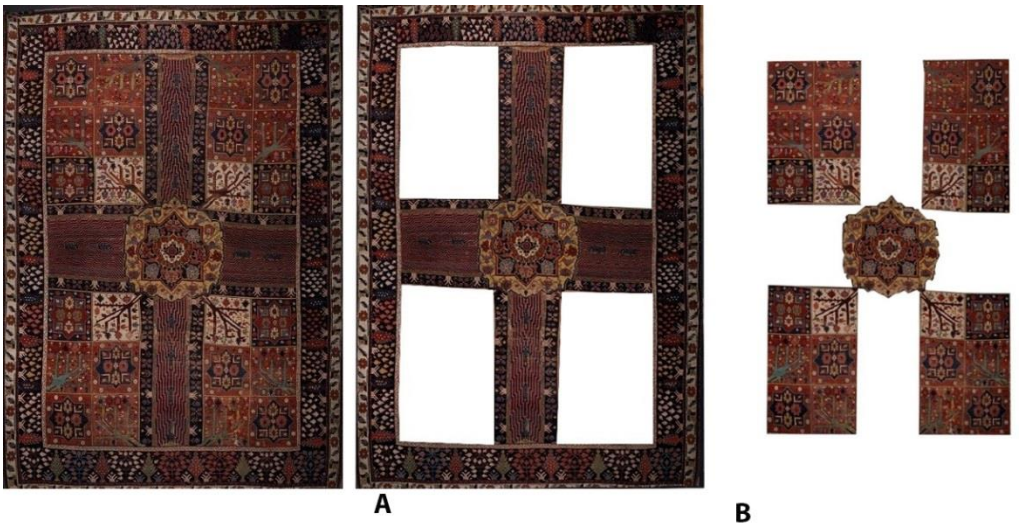

Figure 95: Image analysis of the V&A Persian garden carpet from V&A museum date back to 1700, A: carpet border representing garden's wall, Segmentations representing the two main axes of Persian gardens and central medallion represent the garden's pond. B: sections full of trees, flowers and plants, representing the importance of planting in Persian gardens (Author 2014)

Figure 96: Image analysis of three axes garden carpet (Wagner garden carpet) for the seventeenth century from Glasgow museum. A: carpet border representing garden's wall, Segmentations representing three axes Persian and central medallion represent the garden's pond and pavilion. B: segmentations demonstrates the geometry employed in three axes Persian gardens (Author 2014)

Figure 97: Persian Miniature depicting the Persian carpets as canopy for the king (16th century) (Kevorkian and Sicre 1998: 123)

I have tried to find pictures of the carpet, even an imaginary one, but I could not find anything apart from its description: Its plan represented the King's spring garden with the planned representation of a Paradise. Gems, embroidered in the gold ground, represented paths and streams. Emerald was used in borders to show a cultivated greenfield among which were embroidered gems of different colours on golden stalks, which represented fruits. Gold and silver flowers along with silk foliage were used to represent flowering spring plants (Morony 1988).

It has been said by Al-Tabari, Abu Ja'far Muhammad ibn Jarir (1985–2007) in "*The History of Al-Ṭabari"*. 40 vols that this carpet was used as a place to drink when the winter wind blew (Morony 1988). When one sat on it in winter, it was as if it was spring. This ancient Persian evidence supports Heberg and Gothen's viewpoint regarding the history of carpets and refutes the hypothesis that *chahar bagh* carpets cannot be found before the sixteenth century. A stylised representation of the Persian garden has been provided by garden carpets in which a singular affinity with the descriptions of the abode of the blessed in the Quran has been depicted (Gothein

1966: 27-170). Analysing the geometry of garden carpets shows separate sections of single square or rectangular shapes defined by borders. This geometry literally translated the geometry employed for the division of the land in Persian gardens, which has been shaped based on the irrigation system in a two-dimensional garden.

The oldest of all Persian garden carpets can be found in the Albert Hall Jaipur Museum in India (Figure 98). The carpet, 28 feet long and made in 1632 AD, displays a very large garden divided into four main gardens, each of which is subdivided into four sections by streams. The four main gardens are located around a central high square pavilion, open on each side, with a blue dome and decorated with a throne which provides a place for the king to enjoy a view of the impressive garden (Figure 98A) (Wilber 1979: 20-119). The central tank under the pavilion supplied the garden and orchards with two big ponds on either side, as well as the main channel. The system of irrigation represented in this garden carpet is known as the Isfahan channel system, which was introduced by Shah Abbas the Great in and around his capital, Isfahan. Fish swim in the channels, birds nest and fly in the heavy foliage and a great variety of trees and flowers crowd the components. The design of this garden was directly inspired by the contemporary gardens of Shah Abbas. The group of gardens around the central tank are in five colours against the red ground colour (Figure 98B), each of which identified by a separate border. This carpet clearly depicted the Iranian beliefs in the creation of the universe based on the four main elements of water, wind, soil and fire, which inspired the geometry of the gardens based on irrigation water channels (Wilber 1979: 34). Such design is known as Kheshtyor Ghabghabi (adobe or frame shape) which is quite similar to the *Pazyryk* Carpet, the oldest carpet design dating back to the Achaemenid Empire. The *Pazyryk* Carpet was discovered in the Pazyryk valley in Siberia in 1949. It has been said that this carpet was a gift from Cyrus, the king of the Achaemenid dynasty to the Scythian Prince. The carpet was woven in dimensions of 1.83 *2 metres, divided by number of borders (Figure 99) (Artira 2008).

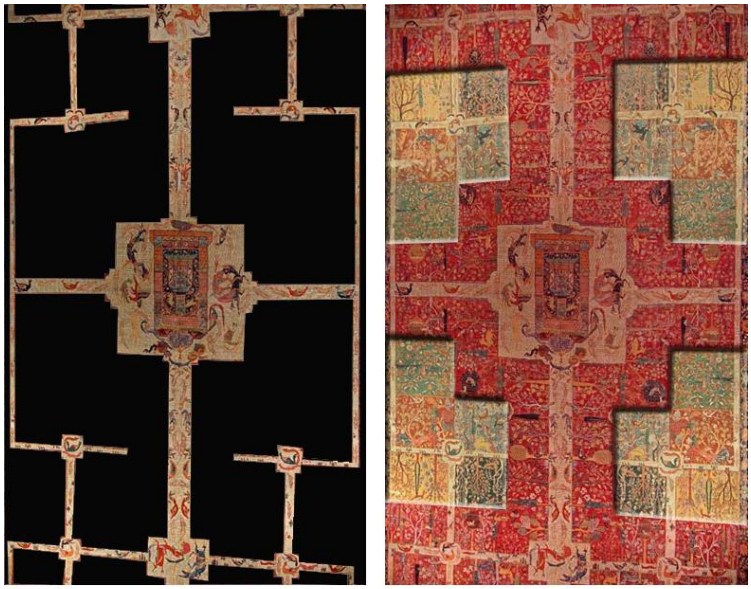

Figure 98: Analysis of the garden carpet of Golestan from Jaipur Museum for 1632 AD.

A: Isfahan channel system, representing the geometry of the carpet, B: The group of gardens around the central tank are in five colours against the red ground colour (Author 2014)

Figure 99: Pazyryk carpet for 546 BC, found in 1949 (Artira: 2008)

8.2.2- Kheshty (Adobe Design Carpet), Toranj &Lachak Torang, and Golafshan Carpet

In *Kheshty* designs the carpet's field is divided into square, rectangular or rhombic frames, each of which includes a flower, a bush or a decorated tree. This design could be considered as an abstraction for *Golistan* carpets (Hosoori 1998: 247-259). Strong similarities to the geometry of Persian gardens' divisions, created as the result

of irrigation systems, can be seen in the analysis of one such example of the *Kheshty* design (Figure 100). Each square depicts a special type of plant or tree, representing a different meaning in Iranian beliefs (refer to the table of "Symbol of garden trees in Persian gardens" - chapter 7).

The square, circular, rectangular or diamond shapes of *Toranj* (Medallion) in *Toranj* and *Lachak Torang* gardens represent the central pond of Paradise in Persian gardens. They translate the abstract order in real gardens, whereas the carpet field with the motifs of flowers, trees and plants sometimes within the rectangular shape sections depicts the plantation and water as a significant element in gardens. Such design mostly emphasises the importance of plantation in gardens; nevertheless, 'wall', as an inseparable element of the Persian garden, is represented with the aim of highlighting the significance of enclosure in in conveying an identity to the garden. Water as the symbol of purification has been represented through streams and ponds (Shahcheraghi 2010: 182). *Golafshan* carpets represent different types of flower motifs, depicted either symmetrically or in irregular order within the main border of the carpet[63].

Figure 100: Image analysis of Adobe design Carpet A: carpet border representing garden's wall, Segmentations representing three axes Persian and central medallion represent the garden's pond and pavilion. B: segmentations demonstrates the geometry employed in three axes Persian gardens (Author 2014)

[63] Based on research done by scholars in the field of carpets, most of the flowers used in carpet motifs are tulips, jasmine, bulb narcissi, lilacs, primrose, poppies, anemones, larkspur, and rose.

8.2.3- *Divar-e Bagh* (Garden Wall) Carpets

The border in Persian carpets is one of the main and recurring elements in Persian carpet motifs; it represents the wall in Persian gardens. In other words, the surrounding wall in Persian gardens with all of its functions and meanings has been depicted in such carpets. This fact highlights the meaning of Paradise (Pairi-daeza) - an enclosed garden surrounded by numbers of walls (possibly seven) - among which one is higher and wider than the others, offering a secure space for its inhabitants to hide from the evil spirit.

8.2.4- Mihrab (Sanctuary) Carpets

This type of carpet is called *Mihrab* because it emulates the semi-circular niche in the wall of a mosque that indicates the qibla (*Mihrab*), a symbol which is usually found in the praying carpets. The *Mihrab* in this carpet represents the paradisiacal gate through which a beautiful garden full of trees, flowers and flowing water, as explained in the Quran, can be seen (Figure 101A). The borders in such motifs stress the enclosure of the Paradise as a place for believers - men and women - as promised by God (Figure 101B).

Figure 101: Analysis of Mihrab design carpet (eighteenth century) A: The Mihrab stands on two blue columns column full of flowers and birds. B: View through the gate showing a Paradise full of flowers and fruits, mostly grape, pomegranate, apple and fig (Author 2014)

The analysis of the eighteenth-century garden carpet similar to the Chahar Bagh Avenue's structure shows that this type of carpet design represents the image of

Paradise in the Iranian imagination, which in turn influenced Shah Abbas in the creation of the Boulevard (Figure 102). Although understanding the carpet motifs would require more in-depth studies, the analysis I have undertaken in the current chapter confirms the numbers of similarities between gardens and their simulated form (carpets) in the order including arrangement, harmony, and geometry along with elements including

wall, water, buildings, and plantation. As already mentioned, garden and garden carpet influenced each other as two different forms of representation of the earthly Paradise.

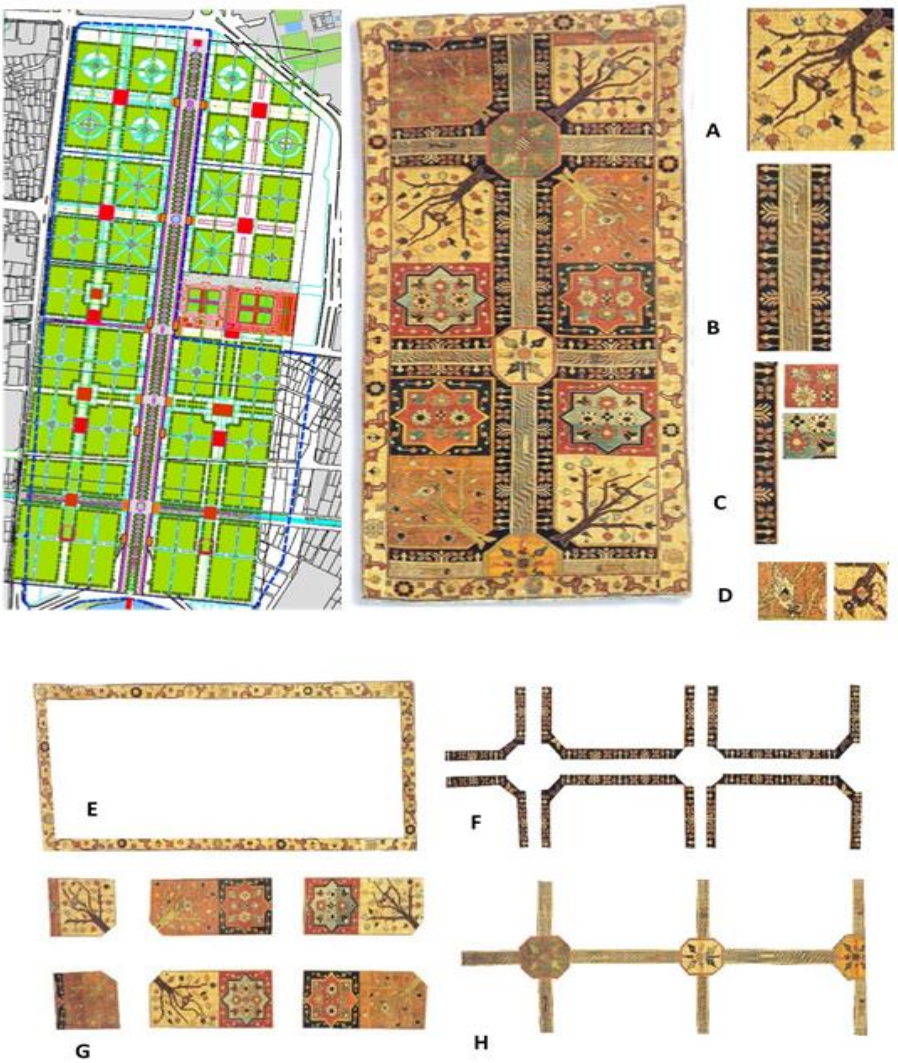

Figure 102: Analysis of an eighteenth century garden carpet, of the Kerman type, which evidences similarity with the Chahar- Bagh Avenue, A: trees with four-season colours, B: water flow in streams with flower planting all around, C: representing both real and imaginary flowers, D: representing birds within the garden, main orders within the garden also can be found in the analysis of carpet gardens, E: wall or the main border, F: segmentation for flowers plantation, G: segmentation for trees plantation, H: streams and ponds representing the irrigation system within real gardens (Author 2014)

Table 6 proposes a synopsis of the analysis of Persian carpets and their influence in the perception of the nature of the Chahar Bagh Boulevard. The texture, colour and even line types used in representing different features such as water streams or flowers are associated with both olfactory and auditory senses. For instance, water in steams (Figure 102B), which has been depicted through the graphic broken lines, shows the water flow and recalls the sense of movement and sound in the physical gardens. The variety of flowers and plants (Figure 102C) enhances the olfactory sense, crucial in providing a fresh environment to enjoy and relax in.

Table 6: Analysis of the relationship between carpet design and Persian garden design (Elaboration by author 2014)

<table>
<tr><th>Carpet design</th><th>Motifs in carpet</th><th></th><th>Garden elements</th><th>Garden’s design</th></tr>
<tr><td rowspan="5">Representing the complete image of gardens</td><td>Golistan Carpets</td><td rowspan="6">↔</td><td>Geometry of the garden (Chahar Bagh)</td><td>Garden’s general outlines</td></tr>
<tr><td>Kheshty Carpets (Adobe design Carpet);</td><td>Sections in the garden for planting for irrigation order</td><td></td></tr>
<tr><td>Toranj and Lachak Torang Carpet</td><td>Pond, fountain</td><td rowspan="4">Garden’s components</td></tr>
<tr><td>Golafshan carpet</td><td>Garden flowers</td></tr>
<tr><td rowspan="2">Representing some aspects of Persian gardens</td><td>Divare bagh (garden wall) carpets</td><td>Wall around the garden</td></tr>
<tr><td>Mihrab (sanctuary) carpets</td><td>Garden’s gate</td></tr>
</table>

8.3- Persian Miniatures

Miniatures are another typically Persian art form; they are analysed here with the aim to better understand the image of gardens. The general theme in Persian miniatures is a fenced enclosure including a pavilion with balconies and a front pool.

A prince, who sits on a raised dais covered by carpets, enjoys the shade and coolness afforded by a shelter. Flowering trees and plants appear beyond the fence, and the more elaborate scenes show a narrow stream or even some of the workers in the garden. The lush quality of the vegetation and architectural decoration are two recognised features of Safavid miniatures. These developed into a relationship between artistic and poetic languages, into many of the great literary works of poets such as Ferdowsi, Sa'adi, and Hafez, and achieved a deep and sincere accordance with poetry by providing a visual representation of gardens, making them more enjoyable and easier to understand.

Miniatures, which depict gardens dating back to the fifteenth and sixteenth centuries, following the Mongolian invasion, were usually illustrating the images of nature, plants, and animals. Scholars in Iranian painting employed the phrase "gardens of desire" as Kerorkian Sicre mentioned in his book "Les jardins du désir" for this category of miniatures (Shaahcheraghi and Eslami 2010: 43-54). These scholars argued that these paintings are not necessarily the image of nature; instead they mainly symbolised the Paradise and the gardens of pleasure, a place that is promised to those who pass the Day of Judgment, as recorded in the Quran. These type of miniatures could be divided into three categories: the first group are those representing the imaginary gardens in Iranian minds, the second includes those which signify a holistic image of gardens including order, elements and plantation and, the third consists of paintings which represent the abstract order and part of the elements in the gardens along with some activities taking place within them.

8.3.1- Miniatures Representing The Imaginary Gardens

For the analysis of an example of an imaginary garden miniature, I have chosen a painting dating back to 1300 (801 Hijri), from the Courtesy of the Museum of Turkish and Islamic Art (Figure 103) in which the ground has been adorned like a bride. Mountains covered by blossoms reaching to the sky depict the image of spring. This miniature transports us to the gardens of Eden. According to Kevorkian (1998: 175), this painting symbolises the ideology of the Zoroastrians; it has been mentioned in the Avesta that Zoroaster, in his journey to heaven, stops on top of a mountain, which is covered in wild flowers and plants. During this time, he conceived the power of Ahura Mazada (The Lord) (Kevorkian 1998: 175).

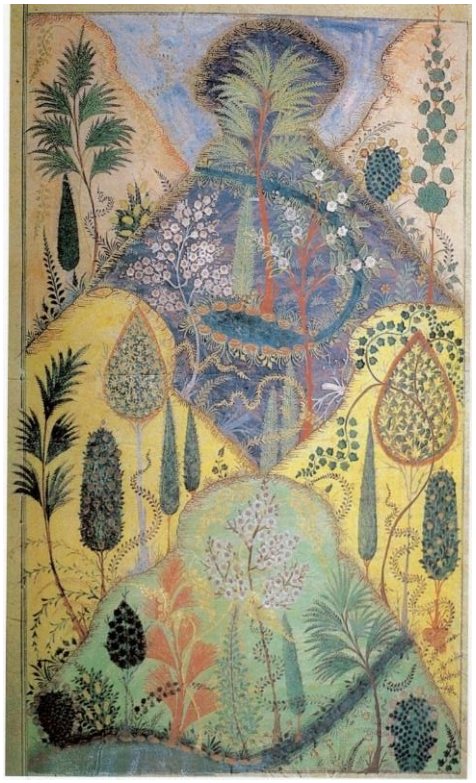

Figure 103: "A Paradise Garden" miniature
(Kevorkian and Sicre 1998: 78)

In this painting, the artist expressed the main concept and ambience of *chahar bagh's* Boulevard - a peaceful environment for people to enjoy the sense of comfort - by demonstrating a world without sorrow and problems. Although this painting does not contain any order relating to what Shah Abbas or other garden makers applied to their designs, it shows a complete image of Paradise through the elements of water and plantation, where a refreshing stream meanders through cypresses and flowering trees with branches filled with birds towards a pool with waterfowl.

8.3.2- Miniatures Signifying Complete Image of Gardens

The garden order (hierarchy and geometry), and garden elements such as water - represented as streams, ponds, fountains, and pools, walkways, entrance gateways, walls, and pavilions, along with plantation represented the complete image of gardens in such kind of paintings. However, there is no actual image of nature in them; they still represent an abstraction of real gardens. An example of this category is a composition known as "A Father's Discourse on Love" (Figure 104) by artist Mirza Ali, which dates back to the sixteenth century. It is an illustration of Jami's

masterpiece, known as *Haft Awrang*[64] *(*seven thrones). In this painting, the father advises his son to achieve a balance between delightful aspects of his life. It shows the gardener busy creating a pleasant place for the residents who are playing chess, picking fruits from trees, picking flowers, and listening to music.

Another miniature, amongst the most well-known ones, represented one of the very popular Persian folk legends known as "The Physician's Duel", a dazzling illustration by a twelfth century Persian poet, Nizami's masterpiece, *Khamsa*[65] (Fig 105). Attributed to Aqa Mirak, this miniature stands for a typical sixteenth-century Persian garden, which predicts the power of physicians at the court of Shah Tahmasb (1524-76). A little pavilion beside the huge sycamore tree provided shelter to the prince from the sun's rays. Death and life have been symbolised through a coupled cypress and blossoming fruit tree on the left side and through a cypress and a young willow growing from an old stump on the right side. A poplar tree to the left and a bush of roses beneath the sycamore, and flowering clumps of iris, poppy, narcissus and hollyhock, are easily recognisable in this drawing, reminding us of the flowers really planted in Persian gardens (Gothein 1966: 26-170). Welch (1979: 146) has translated the calligraphies over the door and over the pavilion as follows:

> Above the door: may this court always be opened in prosperity,
> Over the pavilion: even though the dignity of our threshold does not become lofty, nevertheless, the sun sets its feet in our house. May Allah perpetuate his kingship and the sovereignty forever.

Figure 106 illustrates a Persian miniature of a sultan entertaining people in his garden. The garden is divided into four quarters by sophomoric water channels circulating from the tiled pool. According to Gothein (1966: 58), "Paved green tiles in such miniatures substituted for the grass".

Another example of fifteenth-century miniatures is "Khusraw and Shirin listening to stories told by Shirin's maidens", inspired by Nizami's Khamsa as yet another representation of Iranian garden by Aqa Mirak (1539-43). As can be seen in Figure 107, the central pond in a square shape consists of a fountain in the middle,

[64] The Haft Awrang is a compilation of seven masnavi poems and constitutes the major poetical work of Jami (d. 1492) composed in the second half of the fifteenth century.

[65] Literally "collection of five," this handmade production. Khamsa is a foundational text of Persian literature, which is a set of five compositions in verse form by the famous twelfth-century poet, Nizami Ganjavi.

highlighting the element of water, while the roofed pavilion and the golden throne – the place for Khousraw's and Shirin's talk – protected by a fence, symbolised the order and functional elements of palace and wall within the real gardens[66]. Aqa Mirak's illustrations explain their stories strongly by detecting the figures, still life, trees, and architectural elements through an artistic arrangement. Most of the painted miniatures flourishing in the fifteenth and sixteenth centuries depict legends and princely pursuits. Here the garden acts as the setting, with ponds, pools, water channels, flowers and trees that are all delimited in detail (Lehrman 1980: 109-139).

Figure 104: "A Father's Discourse on Love" miniature(Kevorkian and Sicre 1998: 118)

Figure 105: Persian Miniature Painting of "The Physician's Duel" (British Museum)

[66] An adjoining composition to the Khamsa is identified as Bahram Gur and the Indian princess attributed to Muhammad Zaman, which is the initial point in the study of Khamsa in the secondary literature (Landau 2011: 101). The analysis of the painting of Muhammad Zaman has allowed us to identify the absence of a pavilion by a dominant green colour; nevertheless, the importance of the garden has been highlighted by the green colour of the trees.

Figure 106: Khousraw and Shirin listening to stories told by Shirin's maidens miniature (Landau 2011: 104)

Figure 107: Sixteenth century Persian miniature painting (Gothein 1966: 58)

8.3.3- Miniatures Characterising Some Aspects of The Gardens

The third group of Iranian paintings includes those paintings which depict some elements such as pavilion, wall, water and plantation along with some of the garden-related activities. Images of lovers within the gardens, outdoor festivals, celebrations, and entertainment and state affairs have been idealised in such miniatures, demonstrating the activities taking place in gardens. The first example of this category that I have chosen is an illustration similar to Agha Mirak's composition of *Khousraw* and *Shirin.* This illustration is known as *Turkitazi and Turktaz,* the queen of the fairies, based on a story related by an Indian Princess, of the once-king Turktazi's lands in the verdant garden of *Turktaz* and his quest to learn the secret of a city whose inhabitant dressed all in black (Figure 108). It features an outdoor garden in which faeries serve two central figures seated on a *takht* (throne) under a night sky. This illustration is situated within the verses of Nizami where he says:

> Each maid a candle in her hand;
> Sugar and candles are well joined.
>
> The garden filled with cypress forms,
> All brilliant jewels, with shining lamps.

That fortune-favored queen approached;
Bird-like, sat on her royal couch (Landau 2011: 109).

The iconography of both illustrations – the Khousraw and Shirin and the Turktazi – is similar in representing the paradisiacal gardens, except for the wings, which are represented in Turktazi miniatures.

In order to highlight some aspects of Persian gardens in miniatures I have picked a composition by Mirza Ali depicting one of Nizami's poems in which the queen Nushaba is addressing Alexander the Great on the throne (Figure 108).

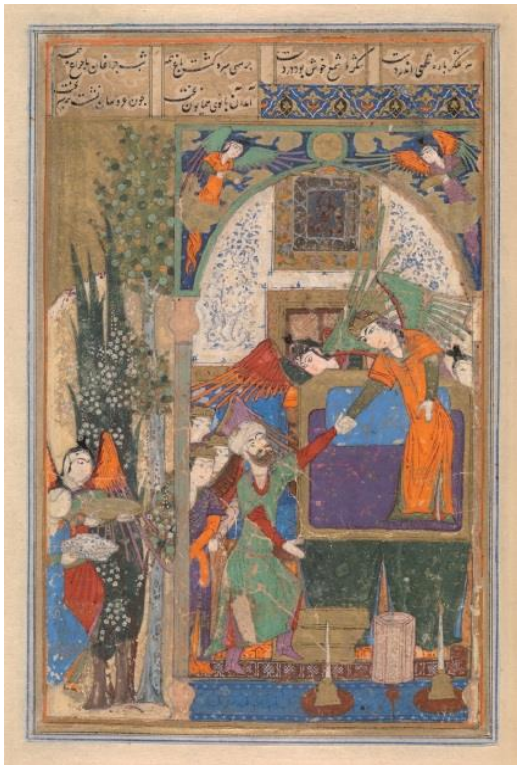

Figure 108: Turktazi and the Queen of the Faeries, based on Khamsa of Nizami for the fifteenth century (Landau 2011: 110)

Figure 109: The Iskandar and Nushaba (http://massiwa4.tumblr.com/post/108469445371/luckycompiler-once-persian-miniature-painting)

A magnificent setting for activities has been drawn centred on a golden throne sheltered by a carpet-canopy within the enclosed garden. Two repeated dominant features in this simple composition are the pavilion and the tent that express the feature of pleasure within the gardens. The round pool designed with arabesques emphasizes the contrast between manmade formality with the starkly barren

mountain in the background and informality of a meandering meadow stream (Figure 109)[67].

The last masterpiece selected as a case study, which dates back to the sixteenth century, is attributed to Abdollah-e Mozahheb, and depicts one of the Omar Khayyam poems (Figure110). Khayyam was a Persian polymath, philosopher, mathematician, astronomer and poet. His story tells us about a city dweller who gains access to the garden by bending and perhaps breaking the tree branch. The owner of the garden asks him, "Why are you destroying all the natural beauty of the garden which is the result of a long effort of the gardener?"

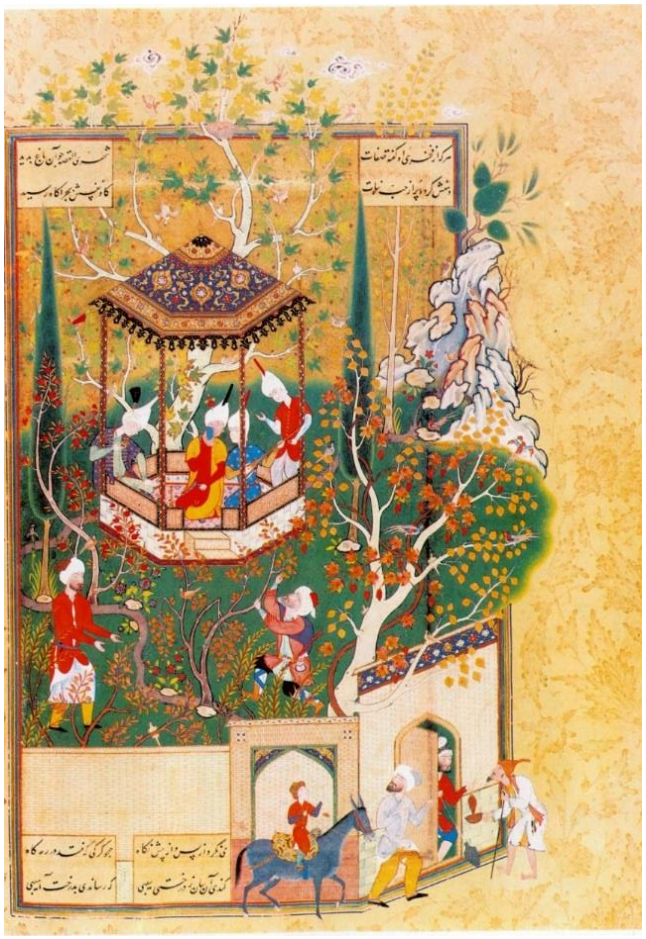

Figure 110: "A City Dweller Desecrates a Garden"miniature
(Kevorkian and Sicre 1998: 122)

[67] Although the lines of poetry on this page refer to an episode from the story of Khousraw and Shirin, the scene itself is an illustration from the last book of the Quintet, "the Iskandar Nama." Iskandar, known to Europeans, as Alexander the Great, had heard stories praising Nushaba, the queen of the peaceful and prosperous land of Burda. To test the truth of these tales, he decided to enter her court disguised as a messenger. Despite his ruse, Nushaba recognised him immediately. Iskandar protested, but the queen insisted that she did identify him correctly. To settle the matter, a servant brought Iskandar a piece of silk. He opened it, beheld his own portrait and was speechless. Sensing Iskandar's fear, graceful queen Nushaba immediately made him welcome with compliments and conciliatory wishes (Welch 1979: 148).

هر سبزه که برکنار جویی رسته است
گویی ز لب فرشته‌خویی رسته است
پا بر سر سبزه تا به خواری ننهی
کان سبزه ز خاک لاله رویی رسته است
(From Kevorkian and Sicre 1998: 209)

The grass that grows by every stream
Like angelic smile, faintly gleam
Step gently, cause it no to scream
For it has grown from a lover's dream
(Translated by Shahriai 2009)

The pavilion in this composition is an outdoor platform sheltered by awnings with a rug placed beneath to sit on. The raised platform is set under a sycamore tree, as a permanent element that emphasises a peaceful enclosure. This miniature does not have any component to represent the element of water; nevertheless, the decision of the painter to depict a garden without a pool, pond or a stream should not deter the viewer from identifying the implied presence of water based on other iconographic features.

The main components in the identification of gardens and paradisiacal gardens in Persian miniatures are plantation and water elements. Most of the miniatures analysed here contain a combination of two types of trees, which are particularly significant to Muslims: the cypress and the blossoming plum or almond. The cypress symbolised death while plum and almond blossoms represent life and hope. There is also a great respect for the sycamore tree as the provider of shade in gardens. Other shading trees native to Persia such as elms, oaks, maples, willows, poplars, ash and mastics, including the smaller fruit-bearing trees such as cherry, plum, fig, pomegranate, peach, apple, apricot, or nut trees found their way into gardens, planted along walls and avenues. Grapevines usually grew on pergolas. In addition to trees, a great variety of flowers are another prominent feature in Iranian miniatures. This shows the importance of flowers in Persian beliefs.

Shahcheraghi (2010: 175-205) has pointed to over 31 species of flowers planted in Iranian gardens; tulips, jasmine, bulb narcissi, lilacs, primrose, irises, poppies, anemones, larkspur, and rose are some, amongst which roses are the most popular. Is interesting to consider here Gothein's quotation (1966: 57) regarding the popularity of roses among other people:

> The Romans made revelry with roses, whereas Christians made it the symbol of love; however, none of them appreciated the flower's contribution to the delight of a garden like the Persians did.

This queen of flowers also has been extolled in most of the Persian literature, examples of which can be found in the poems of Omar Khayyam:

> Each Morn a thousand rose bring …and I sometimes think that never blows so red/ the rose as where some buried Caesar bled (Gothein 1966: 57).

Hafez also wrote about the Persian spring: "Earth rivals the Immortal Garden during the rose and Lily's reign" *(ibid)*.

The rose was also the main motif in the design of pottery plates, bowls and tiles. Water elements can be seen through tiled bordered ponds and pools of different popular shape - square or circle - connected with channels containing a delicate central water jet fountainhead.

8.4- Conclusion

The analysis of all garden categories in miniatures offers an alternative perspective in the representation of gardens to that of carpets. The carpets are mostly emphasising order – particularly those of *Golistan* and *Kheshty* carpets - by representing geometry for the arrangement of flower and trees motifs while the miniatures mainly represent the details of elements such as water, wall, and pavilion and plant species. The interpretation of both miniatures and carpets confirms the architectural response of the Persian gardens to the functional demands of humans, as well as a means of visualisation of imaginary dreams in which colourful components feed the souls of people who believed that greenery and water cannot be the permanent features of space, but are instead their imaginative representation.

An enclosed area planted with fruit trees, surrounded by flowerbeds to the edge of the walls, and focusing on a marble pond with a fountain in the middle provides the pavilion with a refreshing coolness, which illustrates a unique theme for the representation of gardens in Iranian artforms. Water streams drawing from the central pond and distributing water in the garden for irrigation emphasised the Quranic image of Paradise. This supports the fact that Islamic gardens were inspired by Persian gardens as a symbol of earthly Paradise and, after the Quran's explanation

of celestial Paradise, and followed a specific space arrangement. Water elements illustrated in miniatures are in association with auditory features in Persian gardens, while plantation including flowers, trees and fruits symbolises the fragrance within them.

The main feature of Iranian arts is the diversity of colours, reflected in its variety of carpets and miniatures. This aspect illuminates the Zoroastrian belief in colours as the first daughter of light, which gives life to the materials in the paintings. This feature may indicate that gardens are the best place for representing the colours as the spirit of life represented through features and elements within the garden. In other words, Iranian arts, particularly miniatures, try to make a connection between the spiritual and the material worlds. This feature of Iranian art highlighted a different aspect of Persian gardens in which the viewer experiences a piece of the real world with a strong connection to the spiritual universe, an environment to spend peaceful times in, away from the daily busy life. According to Auhra Mazda's tradition of the Zoroastrian period, the garden is the best place for connecting to the spiritual world in which impurity is not allowed.

Depicting the human figures in miniatures is a new component in the representation of Persian gardens in Iranian art. As the Quran strictly forbade the depiction of human figures, the art of sculpture, which could be seen in the carved stone of fountains with figures, did not flourish among the Persian gardens after the Arab conquest (Shaahcheraghi and Eslami 2010: 43-54). Although this Islamic tradition influenced the carpet motifs, Persian paintings under Islam had never completely banned the human figure. In most of the miniatures, except those representing the imaginary gardens, the image of the figure, often in large numbers, are central. Human figures in such miniatures are used to show the activities which took place within the gardens. For example, a place for recreational activities such as social gatherings or parties. Example of which can be seen in figure 109. Garden could also be used as a place for relaxation (Fig. 107), a place for governmental usage (Fig. 106) and even holding religious rites. Investigating garden's usage is an aspect which cannot be studied through analysing the real example of gardens and miniatures consist of human figures could benefit us in this regard.

Another interesting feature in miniatures is the random layout in representing some aspects and components of gardens, which offers liveliness to their compositions, and cannot be found through analysing the real examples. The orderly arrangement,

which can be seen in the pre-Islamic and the Islamic garden patterns, is inconsistent with the random arrangement of miniatures' components. Nevertheless, the liveliness caused by randomness in Persian art is as crucial as orderly patterns in the creation of identity in Persian gardens. Reflecting upon the influence of Persian gardens on various aspects of Iranian life reinforces the hypothesis that this ancient phenomenon is associated with the developments of literature, poetry, carpet and miniatures as constitutive of culture. The Persian garden is a lyric composed of terms such as water, wisdom, plants, and light.

Modern Chahar Bagh

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9.2.-Chahar Bagh under Qajar

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9.4.2- Metro

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9.4.3.1- The Safavid Jahan Nama

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Chapter 9: Modern Chahar Bagh

9.1- Introduction

Through centuries of development, Iranian (Persian) gardens contributed to what are now called Islamic cities, an example of which can be seen in Isfahan. Due to the geographical position of Isfahan at the centre of the Iranian landmass and its historical prominence, Isfahan became the capital of two major dynasties: the Seljuk (1072-1092) and the Safavid (1502-1736) (Arefian et al 2014: 1795-1807). The analysis of garden evolution in the Middle East and central Asia in the previous chapters explained how the idea of Chahar Bagh Avenue in Isfahan had been shaped over centuries.

Chahar Bagh reached its perfection during the Safavid period. The last available map of the Safavid Chahar Bagh by John Chardin dating back to the late seventeenth century, which has been collected during the first phase of my fieldwork, shows the gardens along the Chahar Bagh as intact and well organised. However, the collected map during the last phase of the thesis data collection reflecting the current state of the Avenue shows the division of the land into small plots replacing the entirety of the Safavid gardens. From the nineteenth century onwards there is limited information regarding the Chahar Bagh and the urban planning of Isfahan. Typically, explanation of modern Isfahan is notoriously brief, mainly consigned to a few paragraphs with reference to the accounts of previous works on the Safavid dynasty (Arefian et al 2014: 1795-1807).

This chapter explains the reasons for the gradual destruction of Chahar Bagh's character and structure from the Qajar period up to the present day. It also shows how this masterpiece, an ancient idea that evolved over centuries from 650 BCE to the eighteenth century under various political, social, cultural, traditional and religious influences and contexts, fell into dereliction and disuse from the Qajar period onwards. The outcome may increase the responsibility of future constructions to respect the heritage value of the old structures in historical cities. Highlighting the factors that led to the degeneration of Chahar Bagh Avenue from its image of perfection under the Safavid into small plaque division in the current time, this chapter is divided into two main parts. The first part mainly deals with the changes that happened to the structure of Chahar Bagh from the Safavid until the beginning

of the Islamic revolution and the second part is about the changes that took place in this Avenue after the Islamic Republic Revolution of Iran.

9.2- Chahar Bagh Under Qajar (1878-1925)

Under the Qajar dynasty, Isfahan was neglected; as Tehran became the capital, the population dropped and commerce declined. Most of the royal properties were no longer in use; thus, maintaining the Safavid buildings became very difficult. Subsequently, the pavilions along the Chahar Bagh fell into disrepair and as a result the palace-gardens along the Boulevard were demolished and began to disappear. The Chahar Bagh's demolition started in 1893, under the Qajar ruler, Zelle-Sultan. The deficit and jobbery in Isfahan prompted Zelle-Sultan to sell the palace-gardens and even the marble fountains along the water fronts of Chahar Bagh. Numerous gardens were demolished and trees along the Avenue were uprooted, and the legacy of the garden city was to become an industrial city (Dehghan et al 2012: 834-838). A new socio-political context influenced the architecture of the Qajar period, which offered a new form and style to the physical patterns, buildings and urban fabric of the cities, including Isfahan (Abrahamian 1974: 3-31). Construction of extensive palace gardens in Tehran under the Qajar, influenced by Western culture, could explain the critical factor in the destruction of the character and image of the Chahar Bagh in the nineteenth century: that Isfahan no longer remained the capital of Persia. Buildings lost their purpose, as they were no longer required for their original intended use.

A comparison between the last map of the Safavid Chahar Bagh drawn by John Chardin in 1780 (Figure 111 and the only evidence we have from the late Qajar period, the map of Isfahan produced under Sultan Reza Khan in 1919 (Figure 112) shows the results of the demolition of Qajar and the disrespect for the previous constructions in the eventual transformation of the palace gardens to residential blocks and open land.

Figure 111: Left: the latest map of Safavid Chahar Bagh drawn by John Chardin for 1780, right: redrawing of the Chardin map (After Chardin 2015)

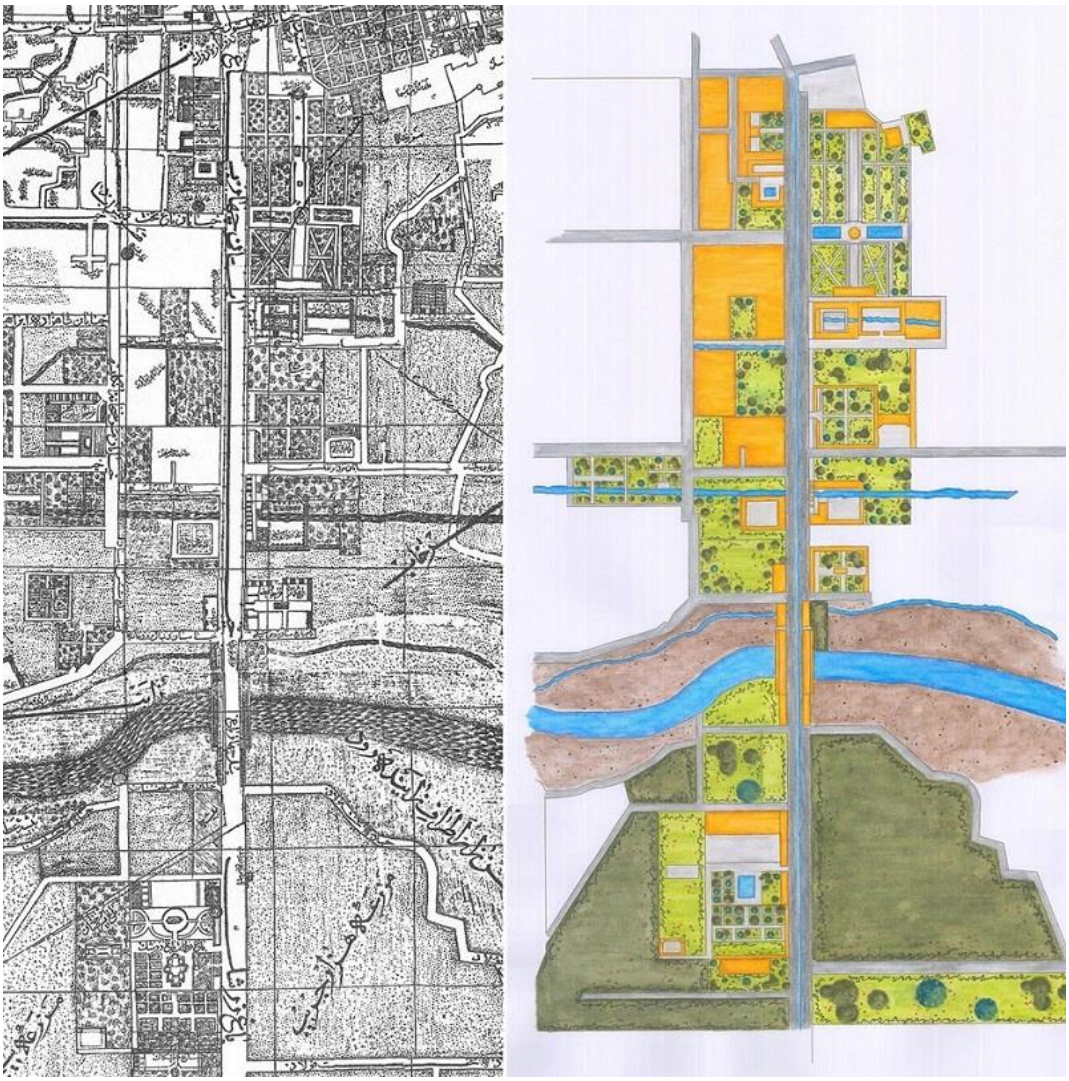

Figure 112: Left the plan of Chahar Bagh for 1919 drawn by Sultan Reza Khan, right; redrawing of the map of Sultan Reza Khan (After sultan Reza khan 2015)

A comparison between the 1919 map of Chahar Bagh Avenue with the post-Revolution map of Isfahan from 2011, drawn by Bavand Consultant, shows the transformation of open and agricultural lands and residential blocks into small plot divisions. When and how this transformation began is revealed by the age of the Chahar Bagh Avenue buildings (2008 drawing produced by Bavand Consultants, Figure 113). Nearly 48 per cent of the buildings were more than 40 years old, which means that this plot division is likely to have happened towards the end of the second Pahlavi rulership (1941-1979) at the latest, and continued into the post-Revolution period.

Figure 113: Analysis of building's age in Chahar Bagh Area (Author 2013)

Unlike the Safavid period in which urban expansion remained in harmony with the existing urban structure of the Buyid rulers, from the Qajar period onwards urban planning did not pay enough attention to the pre-existing urban patterns. Desires of having a modern city have negatively affected the historical city of Isfahan. This can be identified by comparing the new town plan proposal of the Safavid Isfahan in a wider setting drawn by Pascal Cost dating back to 1840 (Figure 114) and the one of Sultan Reza Khan for 1919 (Figure 115).

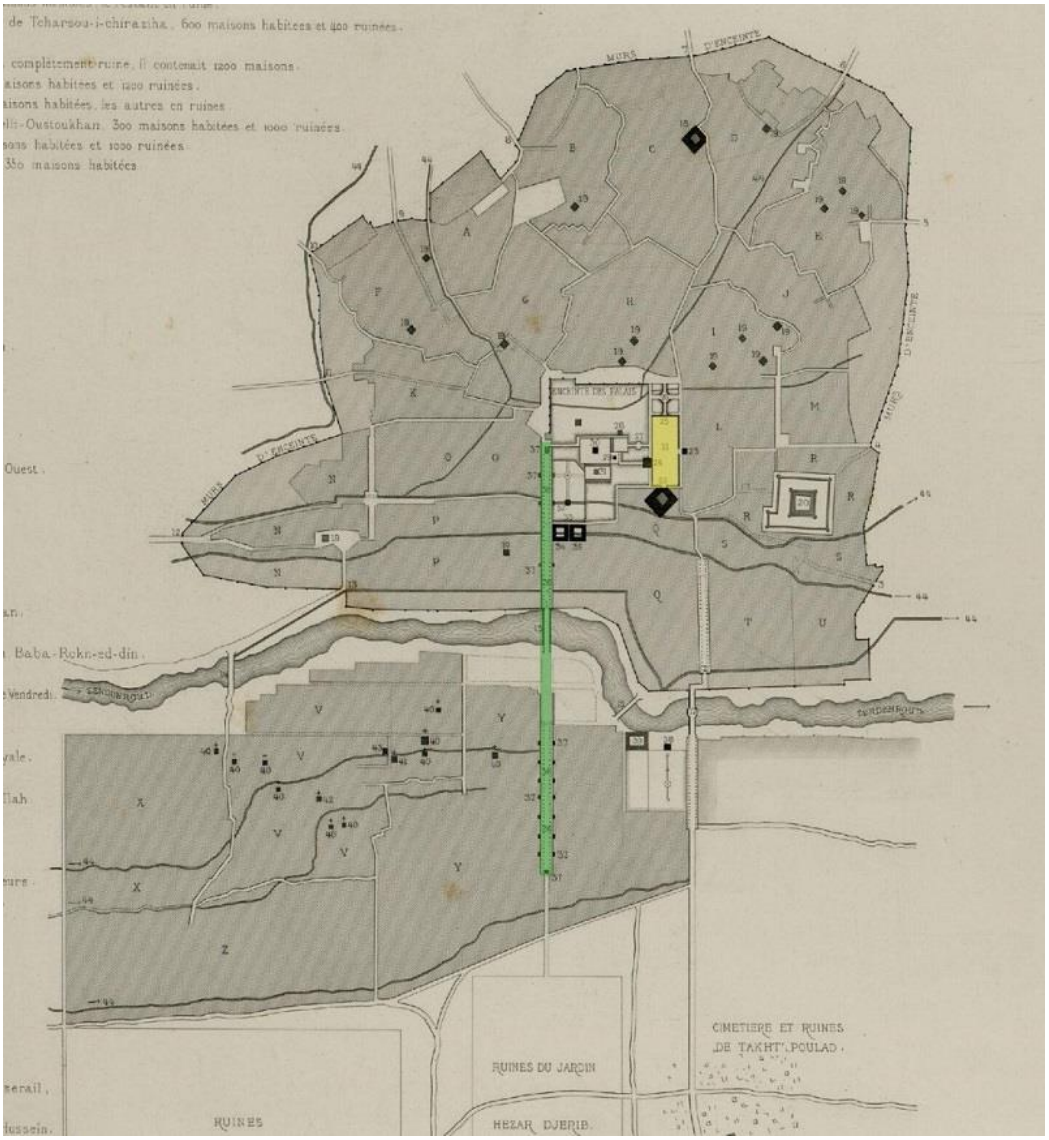

Figure 114: Isfahan Map pf Pascal Coste for 1840, Yellow colour is highlighting the occupied area of the Maidan-I Shah which is parallel to the highlighted by green colour area of the Chahar Bagh Avenue (Monuments Modernes de La Perse' 1867: 28)

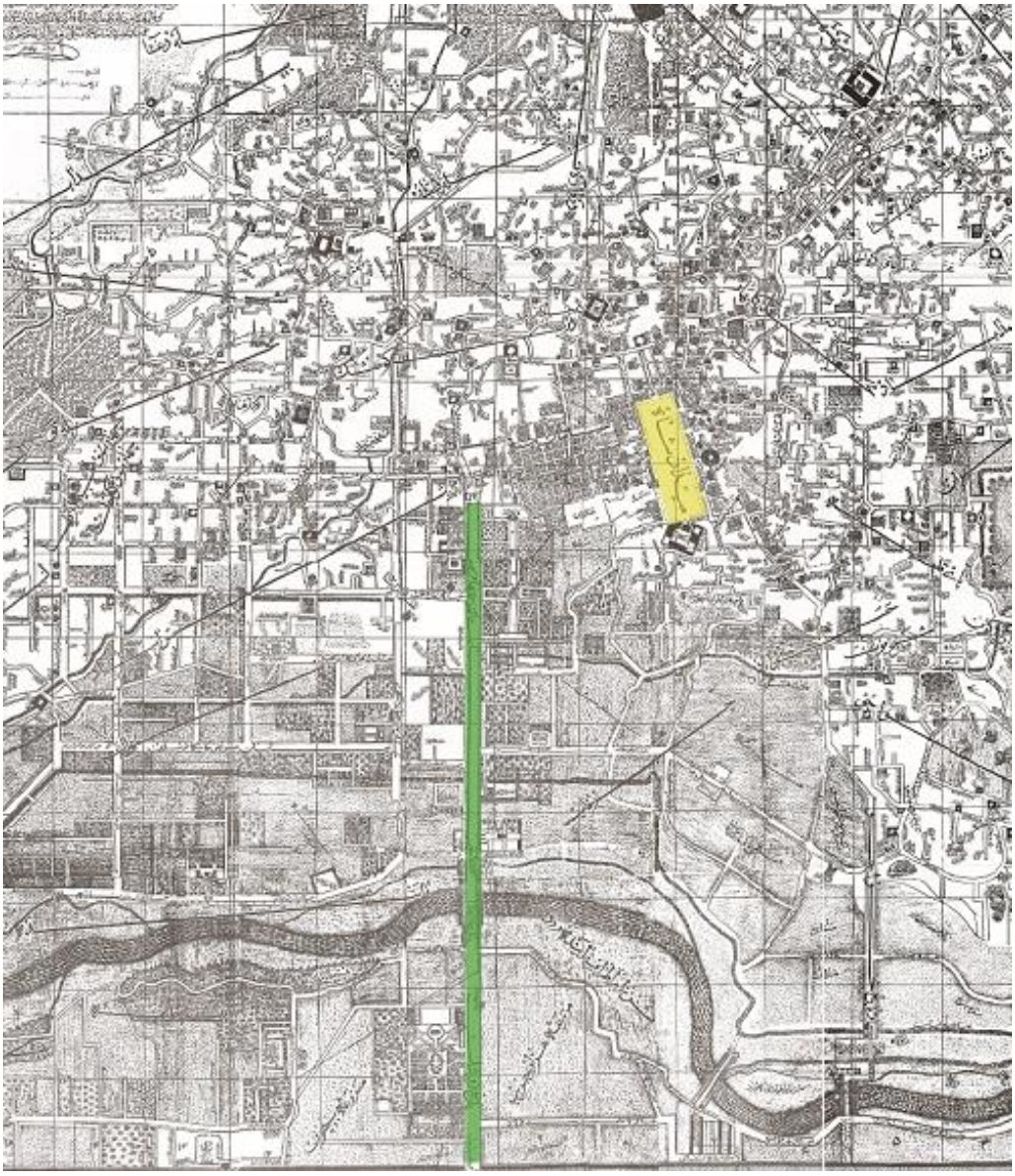

Figure 115: Soltan Seyyed Reza Khan's map of Isfahan for 1919 showing no evidence of walls and gates of the Buyid dynasty, however it shows the presence of gardens along the Chahar Bagh which is highlighted in green. The yellow colour highlights the occupied area of the Maidan-I Shah (Bavand consultant, Iran)

Although in Pascal Cost's map the location of the Maidan has been wrongly depicted parallel to the Chahar Bagh, it nevertheless offers a clear idea of what Isfahan looked like before the orthogonal order of the modern streets broke the homogeneity of its urban structure. The highlighted urban features depicted by Cost which are absent in Sultan Reza Khan's Map of Isfahan are the city wall and gates built in Isfahan under the Buyid dynasty (976–983). However, the 1919 map still shows some remaining

green areas along the Avenue, a feature absent from the subsequent plans of the Chahar Bagh.

9. 3- Isfahan Under the Pahlavi

The next period in which Isfahan started to revive was the first Pahlavi (1925-1941). A number of restoration projects were started which included a new master plan for Isfahan that highlighted the forgotten importance of Chahar Bagh as the significant urban axis in Isfahan (1925-1944). This plan, developed by Bagher Shirazi, tried to take the traffic off the street by proposing two new streets parallel to the Chahar Bagh Avenue (Figure 116). These two streets were very close to the historic bridge of *Sio-se-pol*; however, there was no opportunity to extend these streets to the other side of the river and so they remained as secondary axes only providing partial respite to the traffic situation on the Chahar Bagh Avenue (Karimi and Motamed 2003: 1-16).

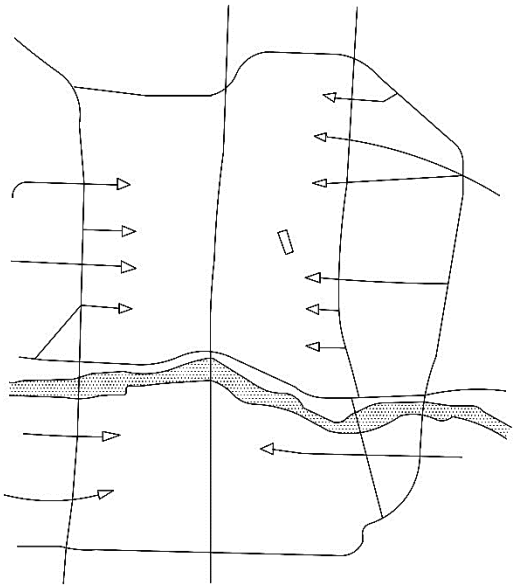

Figure 116: Diagram of new traffic proposals which indicates two parallel streets beside Chahar Bagh. The existing North-South axes would be used for public transport and the East-West roads for access to peripheral car parks (After Browne 1976: 298)

The next plan in chronological order of analysis is the master plan for Isfahan from 1968 (second Pahlavid period). In this proposal a new vehicular network was proposed for superimposition on the historical fabric of Isfahan, with the aim to offer a modern-looking face to the city (Figure 117).

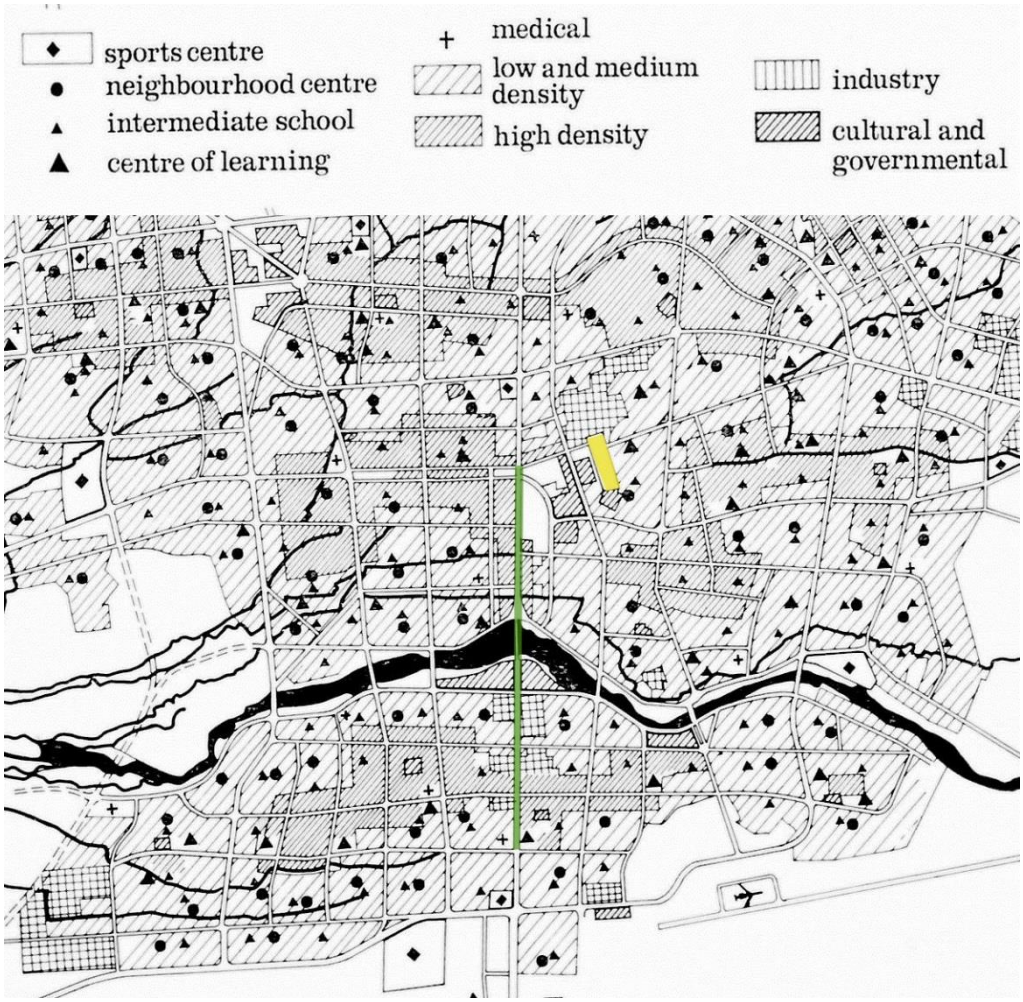

Figure 117: The master Plan of 1968 which superimposed a grid of straight streets for the car to the Chahar Bagh and on a bigger scale to the whole city. The Chahar Bagh has been highlighted in green, and the yellow rectangle shows the occupied area of the Maidan (Karimi and Motamed 2003:9)

Fortunately, this master plan was never applied to Isfahan as designed, regardless of the growth pattern and the integrity of the old quarters of the Safavid city; thus, some of the historic sites, including the Maidan-I Shah, escaped reorganisation and were eventually preserved as World Heritage Sites. The influence of a superimposed pattern of linear streets on Isfahan would not only have destroyed the physical structure of the Chahar Bagh and the other historical areas, but would have also violated the socio-spatial character established through centuries of growth. Although this master plan was never applied to Isfahan, today's urban renewal efforts have been deeply influenced by these strategies of the late-Pahlavi period

initiative in which the physical order of the city was considered separately from its social aspect.

Another remarkable point which is considered in this plan – regardless of the depicted vehicular grid network – is that there is no evidence of gardens and agricultural land along the Avenue under the late-Pahlavi, except for the Hasht Behisht garden highlighted in dark green. Comparing this map with the one for the late Qajar period (1919), it can be seen that the open lands around the Chahar Bagh have been divided into several zones. Thus, considering my analysis of age structure map of Chahar Bagh (2008), and this map I can confidently say that a significant part of the process of plaque divisions was started in the second Pahlavi period at the latest and continued until today. The reason behind the process of plaque division could be related to the influence of ill-considered modernisation and residential development strategies stablished under Pahlavi's time in destroying the heritage of Isfahan.

Two crucial threats to Isfahan's agricultural land were residential developments and industry. One of the modern residential strategies, established under Pahlavid, was to encourage slum clearance in urban areas. Therefore, a person who demolished his old house and built a new one would be exempt from paying taxes for three years (Cantacuzino & Bowne 1976: 293).

The ill-considered new development plan led the owner of the land to make significant profit by selling the subdivided plots. In return, the land buyer could realise a more lasting financial gain by building multi-storied blocks or flats. Therefore, people were encouraged to build apartments for living in within the urban areas, where the palace gardens and large courtyard gardens were the traditional way of living. This tradition according to Ardalan, was "an urban form capable of providing that basic contact with nature so essential to Iranian life" (Ardalan quoted in Cantacuzino & Bowne 1976: 293). Looking back to the Chahar Bagh Avenue of Shah Abbas, this tradition can be seen not only in residential palace gardens, but also in the Madrasah, the Mosque and the caravanserai of Chahar Bagh (refer to chapters three and seven). Highlighting another Pahlavid modern strategy in maintaining the image of Isfahan as a historical city was a limited maximum height of four floors for new contractions, and the use of bricks in the façade design to preserve the historic skyline of the city and respect the traditional architecture of the heritage of Isfahan (Cantacuzino & Bowne 1976: 293-298).

The imposition of the vehicle as the main means of transportation led to the construction of straight streets to cut the compact and integrated urban fabric of Isfahan. The Chahar Bagh and its surrounding gardens was cut by secondary streets in order to provide transport solution for automobile accessibility to this street. Through fieldwork undertaken during this doctoral research I have attempted to survey the impact of modernisation in the northern part of the Chahar Bagh as a result of new building regulations imposed during the Pahlavi era and continued to the present time. As can be seen in Figure 118, all linear streets – mainly created along the borders of the Safavid gardens – cut through the established urban structure of the Safavid to allow cars to enter the commercial heart of the city and create easy access between the new and historic parts of the city.

Not taking into consideration the balance between safeguarding the character of the historic fabric and allowing modernisation of transport systems to operate at the same time led to easy access by car to the cultural/economic heart of the city taking priority over pedestrians. The result of such neglect changed the character of Chahar Bagh from a promenade axis in the Safavid time and mostly residential during Qajar to a commercial street today.

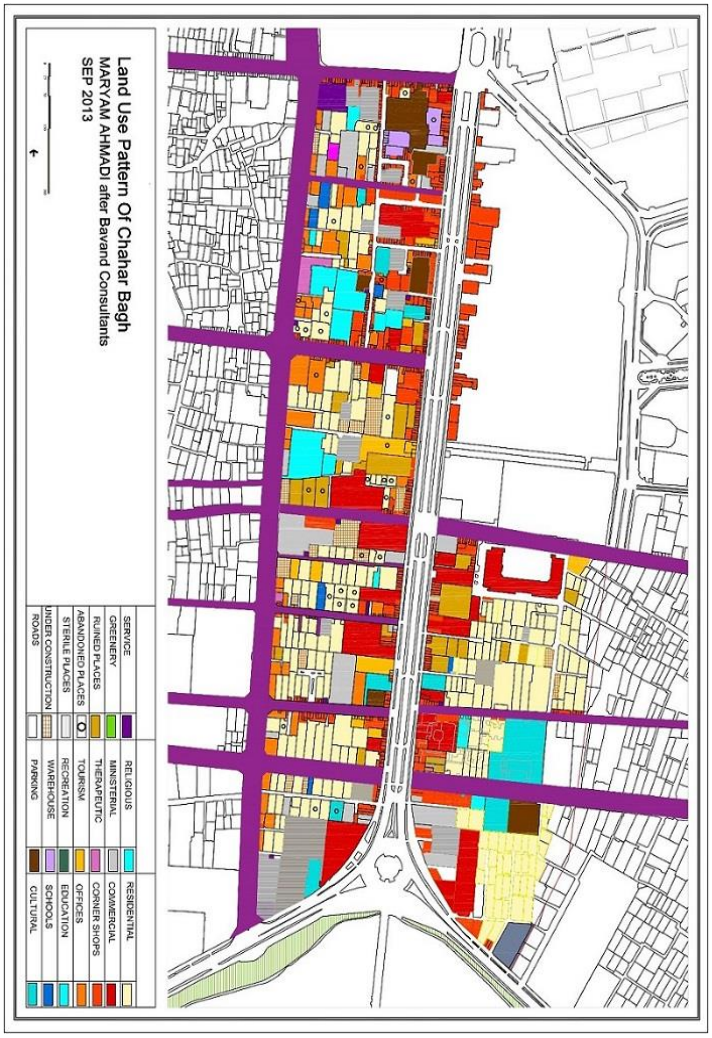

Figure 118: Land use analysis of Chahar Bagh avenue in 2011 (Author 2013)

By 1934-1938, the gardens of Chahar Bagh's southern part began to vanish and were replaced with textile factories. These factories introduced a new urbanscape into Isfahan and and they remained in production until some 20 years ago (Cantacuzino and Beowne 1976: 255-321). After the decline of the textile industry in Isfahan in the post-revolutionary period, following the devastating flood of European imports, these factories with their valuable architecture and large sites have become an attraction for commercial and residential developments in southern Isfahan. Although these factories had great potential to be preserved and to complement the old structure of Isfahan to make it a much more attractive city, unfortunately, only one or two sites were preserved and most of the valuable industrial buildings have been demolished. Investigating more evidence on how and why the industrial image

of the city has been demolished required a precise comprehensive approach which is not of the interest point of this thesis and could be a potential subject interest of future studies.

9.4- Chahar Bagh in The Post-Revolution Period

After the second Pahlavi era, during the Islamic Republic, the preservation of heritage as a part of cultural tradition became an important aspect of urban policy. The city as a historical urban structure has captured an incomparable status in the contemporary culture of modern life. Two new constructions of Jahan Nama Tower –a commercial complex close to the vicinity of Chahar Bagh Avenue-, and the Metro, are two controversial projects that have taken place in the post revolution period.

9.4.1- Jahan Nama Complex

Jahan Nama complex is one of the post-modernism constructions in the area of the Chahar Bagh. The construction of the commercial-recreational complex of Jahan Nam was started in 1997 to the west side of the Chahar Bagh Avenue. As can be seen in Figure 119, the location of the site is within the protective buffer zones near the historical site of the Safavid Jahan Nama Palace (the image of the world). The map shows five buffer zones around each of the heritage monuments. This means that at least 500 metres around each monument should be protected from any new development which is not in harmony with the architectural style of the monuments and could negatively impact on the skyline of the area.

Jahan Nama palace, as discussed in Chapter three, was a three-storied cuboidal palace built under Shah Abbas at the beginning of the Chahar Bagh, opposite the Hizar Jarib, which was located to the far end of Chahar Bagh and demolished under Zell-e Sultan – one of the Qajar's dynasty princes - in 1918. The members of the Safavid royal family were the only people who could get onto the Avenue by a path

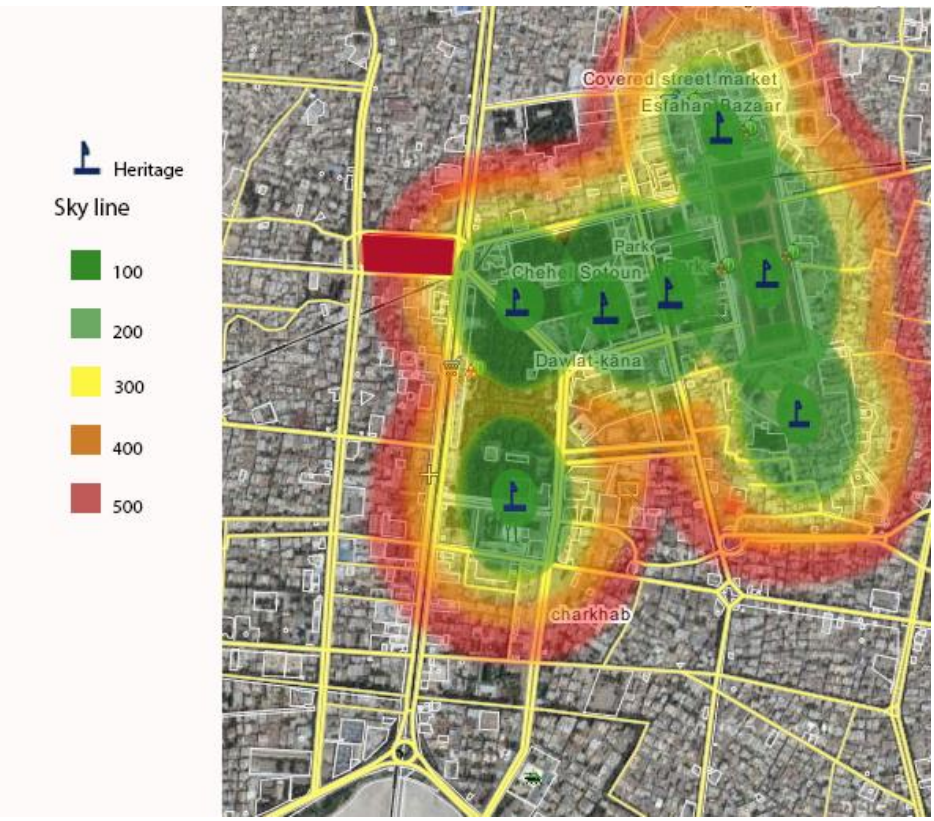

Figure 119: The rectangular site of the Jahan Nama palace, highlighted in red within the conservation protective zone of Isfahan historic city (After Assari 2015: 183)

Following the destruction of the Jahan Nama palace in the Qajar dynasty, a gathering centre for tradespeople and businesspersons was built on the site. Since tradespeople did not show enough interest in using this space, it became a place for artisans' workshops. In 1968, a new structure was suggested for reconstruction and renovation of the whole area as it was feared that the extremely old foundations may lead to building collapse. One of the suggested plans was creating a green space to the west side of the Chahar Bagh, a suggestion which was rejected by the urban designers of the municipality of Isfahan as they decided to apply a heritage conservation strategy in designing this area which followed the morphology of the Chahar Bagh, and at a larger scale, that of Isfahan as a historical city. Applying a unique plan, which was appropriate for the context of the Chahar Bagh, the Municipality of Isfahan started to buy up the properties around the site for the design proposed by Philip Johnson. The redesigning of the site, however, coincided with the Islamic Revolution of Iran and was put on hold. After the revolution, planning of the site was forgotten for a long time until 1995, when the designing of the site was awarded to the Isfahan Saman Gostar consultant. In 1997 the first construction phase of the Jahan Nama complex

commenced. A new commercial-recreational complex with high towers was designed for the purpose of Chahar Bagh and the rehabilitation of its surrounding sites (Isfahan's Municipality information 2013).

After completing almost 70 per cent of the complex, the experts in charge of modification of the controversial 56-metre tower of Jahan Nama warned that if the construction was to continue, the whole building would completely collapse: a dangerous collapse, which would lead to casualties and irreparable damages, so the height of the tower should be reduced to 24.48 metres (Isfahan's Municipality information 2013). Furthermore, exceeding the height limitation in the construction of Jahan Nama imposed a negative visual impact to the Maidan-I Nagshh-I Jahan (Maidan-I Shah). Following the 2012 UNESCO mission in Isfahan, the World Heritage Committee highlighted its concerns dover the new building in the report of 2013 within the "Conservation Protective Zone of Isfahan Historic City" which affected the skyline of the Isfahan (World Heritage 2013: 10-18).

Although the construction of the Jahan Nama complex was an important step towards Chahar Bagh's preservation proposal, the World Heritage Conservation Protective Zone criteria were not followed at the appropriate scale and height of the complex. This could be attributed to an uncoordinated urban development (World Heritage 2013: 10-18). Even though modifications were applied to the complex following the decision of the World Heritage Committee, nevertheless, its location to the west side of the Chahar Bagh still spoilt the horizontal view of the Maidan. The following images show the scale and location of the Jahan Nama complex within the Chahar Bagh Avenue (Figures 120 and 121).

Destruction of the Jahan Nama complex seems to be a painful process; thus, it was a good lesson for future development plans of the historic and cultural axes of Chahar Bagh to be designed while retaining full respect for the outstanding universal value of the world heritage properties in Isfahan in order to avoid design failures like the Jahan Nama tower.

Figure 121: Jahan Nama tower, highlighted in red to the vicinity of Isfahan's historical axis of Chahar Bagh to the left side, highlighted in green (After Superpipe.ir 2011)

Figure 121: The bird's eye view of the large scale of Jahan Nama tower, highlighted in red colour, to the vicinity of Chahar Bagh, highlighted in green (After Superpipe.ir 2011)

9.4.2- Metro

As mentioned above, the Metro is one of the new constructions in the area of Chahar Bagh. Analysing the population growth data of Iran for 1998, published by the Statistical Centre of Iran in 2015, shows that Isfahan's Province population was 4,370,000 in 1998 of which 32 per cent were under 16 years old, 62 per cent between 16 and 62 years old and the lowest population cohort was over 64 years old with only six per cent (Statistical Centre of Iran 2015). This information confirms the request for more city services in the next 10 years. Furthermore, increasing pollution due to the growth of traffic prompted the Esfahan Urban Railway Organization (EURO) implement an appropriate transport system in Isfahan city and the surrounding areas. Although the Metro provided Isfahan with many benefits, it nevertheless was a threat to the historical axis of Chahar Bagh and surrounding monuments.

9.4.2.1- Threats Posed by The Metro Lines 1 and 2

The proposal plan of the Metro for Isfahan consists of two lines: the North-South line, known as the Metro Line 1, and the East-West line, also known as the Metro Line 2. The construction of the North-South Line was subdivided in two lines. The first line (line A) is outside of the buffer zones and it was expected to start operating in 2013. The second line (line B) has two parallel tunnels, passing through the vicinity of heritage sites and historical structure of the Chahar Bagh. The following plan, collected during the final phase of my fieldwork shows the plan of the Metro Line 1, passing under Chahar Bagh Avenue (Figure 122).

Although at the time of writing the Metro Line 1 had not started operating, in January 2013 it was announced that the tiles of the Chahar Bagh Madrassah dome had started to fall off. This affected two square metres of the beautiful tile works of the Chahar Bagh Madrassah's dome (Figure 123), and a number of cracks appeared in the brick wall of the courtyard and at the entrance porch (Moradi in Mehrnews 2013). Despite the assumption that the damage was caused by water supply network issues, the Water and Sewage Organization denied this. Figure 123, taken during my fieldwork, shows the repairing of the tile works for the Chahar Bagh's Madrassah.

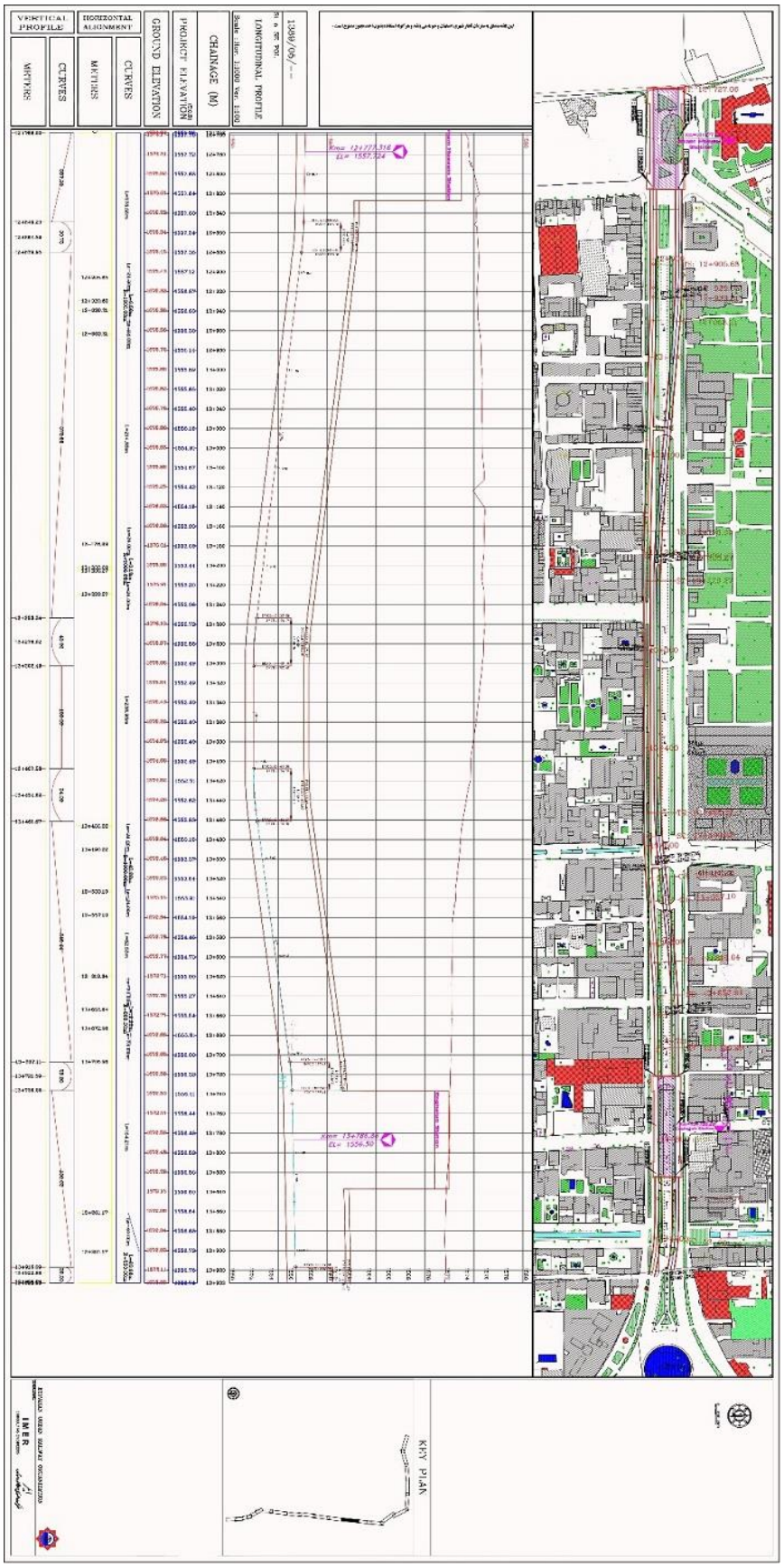

Figure 122: Drawing of the Metro Line 1(Isfahan's Urban Rail way Organization 2014)

Figure 123: Repairing the tile works of the Chahar Bagh's Madrassah's Dome (Photo taken by author 2014)

According to a published interview with experts in restoration and repair of historical monuments in Isfahan, the main reason behind the detachment of the tile works of the Madrassah is mainly because of the vibrations caused by the high volume of traffic on the Chahar Bagh; although the appearance of cracks on the brick walls of Chahar Bagh Madrassah and Allah Verdi Khan Bridge could be due to the construction of Line B of the Metro Line 1, which is passing under the Chahar Bagh Avenue, a close distance from the Madrassah (Fereshte Nezhad quoted in Moradi 2013).

The comments on the reports of the World Heritage Mission in Isfahan in 2013 indicated that the Esfahan Urban Railway Organization (EURO) did not use the recommended "Floating Slab Track" on line A of the Metro North-South line and expected that they used it on line B. Implementing the recommendations of UNESCO about working with the suggested slab track could have reduced the noise and levels of vibration, which could have led to a reduction in the range of frequencies of vibrations caused by drilling carried out in the underground (World Heritage 2013: 10-18).

Therefore, possibly avoiding the use of the slab tracks in line B might have caused the mentioned problems and damage in the neighbouring building structures such as Chahar Bagh Madrassah and Allah Verdi Khan Bridge. Operating the Metro for a

long time would probably cause additional damage to the UNESCO heritage properties.

Regarding the Metro Line 2, the World Heritage Report of May 2013 concluded that one of the factors which could have affected the monuments located in the protective buffer zones in Isfahan historical axis could be the subway Line 2, passing under the Chahar Bagh Avenue. The Mission reached the following conclusions in the report of 2013:

> Concerning the world heritage committee's request to assess the potential impact of the Metro Line 2 constructions on the property and its wider setting, the mission was informed by Esfahan Urban Railway Organization (EURO) that, due to the economic situation, it is not expected that the works for Metro Line 2 will start before 2016. Currently Metro Line 2 is a second priority for EURO. SYSTRA, a consulting company from France, had assessment of finding the optimum routing for the Metro Line. However, the works have stopped at this moment due to the lack of budget. It is possible that Metro Lin 2 will pass underneath of the Meidan Emam (as it did in the previous design). However, it is acknowledge by EURO officials that the planning of the rout and the appropriate studies will be submitted to ICHHTO, and once approved, to the World Heritage enter and ICOMOS, for the review and consideration, before construction work starts (World Heritage 2013: 6).

Emphasis of the mission regarding the confirmation and permission of UNESCO and Iran's Cultural Heritage Handicrafts and Tourism Organization (ICHHTO) in rerouting, planning and construction of the Metro Line 2 was in order to ensure that the suggested plan, constructions, and drilling do not harm the World Heritage sites. Although reports in the public media suggested that the construction of Metro Line 2 has continued, the report of the Mission in 2013 rejected the construction of Line 2 after their site visit in 2012. Two years after the mission of UNESCO in Isfahan, the disaster of the Metro is still the headline in local newspapers. Some believe that the construction of Line 2 has already been started while people in charge claim that the rerouting of Line 2 is still under investigation (World Heritage 2013: 10-18).

9.4.3- The Metro and Preservation of Monuments

Although the construction of the Metro of Isfahan remains a controversial issue for the city, the discovery of the 250-year-old Jahan Nama palace foundation was an unintended yet remarkable outcome of this modern urban development. As highlighted previously, the Line B of the Metro Line 1 passed through Chahar Bagh. A discovery made during the tunnel drilling of this phase led archeologists to decide

on an immediate excavation. The immediate excavation was necessary as the site was potentially going to be one of the main stations of this line. Offering a brief history of Jahan Nama palace would be beneficial to the reader as a reminder in recognition of excavation's findings.

9.4.3.1- The Safavid Jahan Nama

This three-storied cuboidal palace-gate structure, which was used as the main entrance gate to the city, provided a good vantage point for women in Shah Abbas' harem -located to the south and on the left side of the palace - to enjoy different views of the garden in different events, particularly the entrance of ambassadors and travellers to the garden (Figure 124). Shah Abbas created the first pool in the Chahar Bagh axis in front of this pavilion. This square-shaped pool with a 15-foot perimeter was used to irrigate the palace gardens on the western side by means of a water channel. The term "Jahan Nama" was given to this palace as it provided a complete view of Chahar Bagh and its surrounding gardens from the roof (Honarfar 1969: 2-14). The following image (Figure 124) shows the Jahan Nama palace and its location in Pascal Cost's plan of Chahar Bagh.

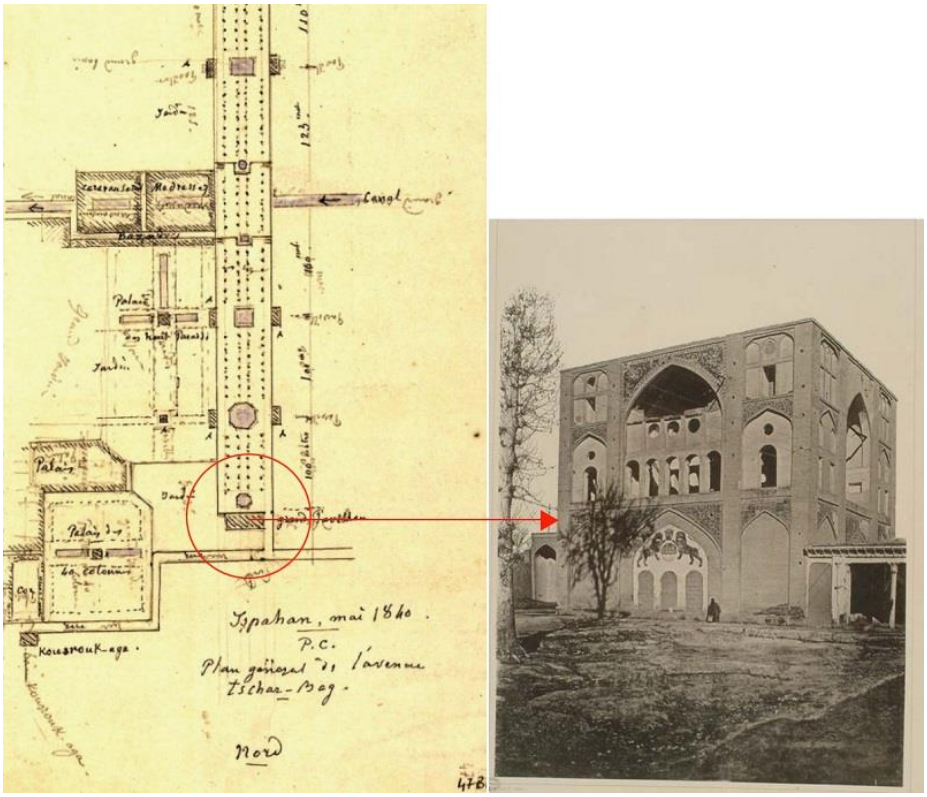

Figure 124: Left, Pascal Cost's plan of Chahar Bagh in 1839-1841 (Isfahan cultural heritage library), Right, Jahan Nama Palace (Shojaei et al 2014: 13)

9.4.3.2- Discoveries From the Excavation

Following an e-mail, I have recived from the supervisor of excavation team, Dr Ali Sojaei for visiting the site, I have had a chance to participate in two sessions of the recent excavation activities, supporting the team with the relevant english resources for the historical records of the area and experienced some excavation workshop on the site. The findings confirm that major damage happened to this palace during the Qajar dynasty. An example of this would be the blocking of the *Talars* which were transitional areas between the inside and the outside of the building. In the next stage of the excavation, the main water supply tube of 600 millimetres in diameter that dates back to the Pahlavi period has been found. This tube caused major damage to the remaining foundations of the palace, the front pool and the pavements of the Chahar Bagh (Shojaei 2015).

The excavations identified eight foundations, six of which – numbers 1-6in Figure 125- were made of stones, sand, bricks, and lime. The estimated width for the foundations is between 150 and 175 centimetres. They were discovered within 90cms from the existing surface of the land and continued to a height of 220cms. Analyzing the old pictures and estimating the dimensions of bricks, which were used in construction of this monument, the proportions of the pavilion are estimated as follows:

> (In translation): Considering the dimensions of each break as 25.5*25.5*5 cm and the thickness of one centimeter for mortar between the breaks, the dimensions for length, width and height of the pavilion are respectively 17/40, 16/4, and 17/1 meters. Notably the longer side is faced to the Chahar Bagh (Shojaei et al 2015: 7).

Two different foundations – highlighted in brown in Figure 125 - have been found at heights of 190cms from the existing ground level to the heights of 340cms, consisting of one row stone, one-row bricks, repeated for the whole foundation. The two eastern foundations could be attributed to a construction that existed before the Safavid dynasty, which was used in the building of the Jahan Nama pavilion. Discovery of some parts of a water channel –highlighted in dark blue in Figure 125 - running through the middle of the Boulevard, confirmed the indicated central water channel of Chahar Bagh in descriptions of travellers. The depth and width of the channel are 82cm and 75cm, respectively (Figure 126). Notably, only 8.5 metres of

the water channel was discovered within the excavation site; the rest is under the street asphalt, extended to the west side of the Boulevard. The discovered continuation of the water channel toward the west confirms the policy of Shah Abbas in irrigation of the surrounding palace gardens through water channels, derived from the pools along the Boulevard. Detection of some portions of a water cascade – highlighted in purple - shows the junction between the Jahan Nama palace's front pool and the Chahar Bagh's central channel. This can support the ideology of Shah Abbas in representing the terrace gardens of Timur - discussed in chapter 6 - in Isfahan.

During my participation in the excavation of Jahan Nama Palace foundations (summer 2015), the North-South side of the pool was found- highlighted in blue in Figure 125- with a dimension of three metres. Unfortunately, crossing the Pahlavi's water tube destroyed the other sides of the pool (Figure 127). In addition to the mentioned discoveries, a diagonal wall has been found to the northern part of the site –highlighted in yellow in Figure 125- which possibly was constructed during the Buyid dynasty. To be highlighted that the findings is under the process of publication in the Iranian Cultural Heritage, Handi crafts and Tourism Organization list of national heritage sites. According to the last interview I had with a member of the archeological team, Elham Arab, the team is still working on the site for possible additional findings.

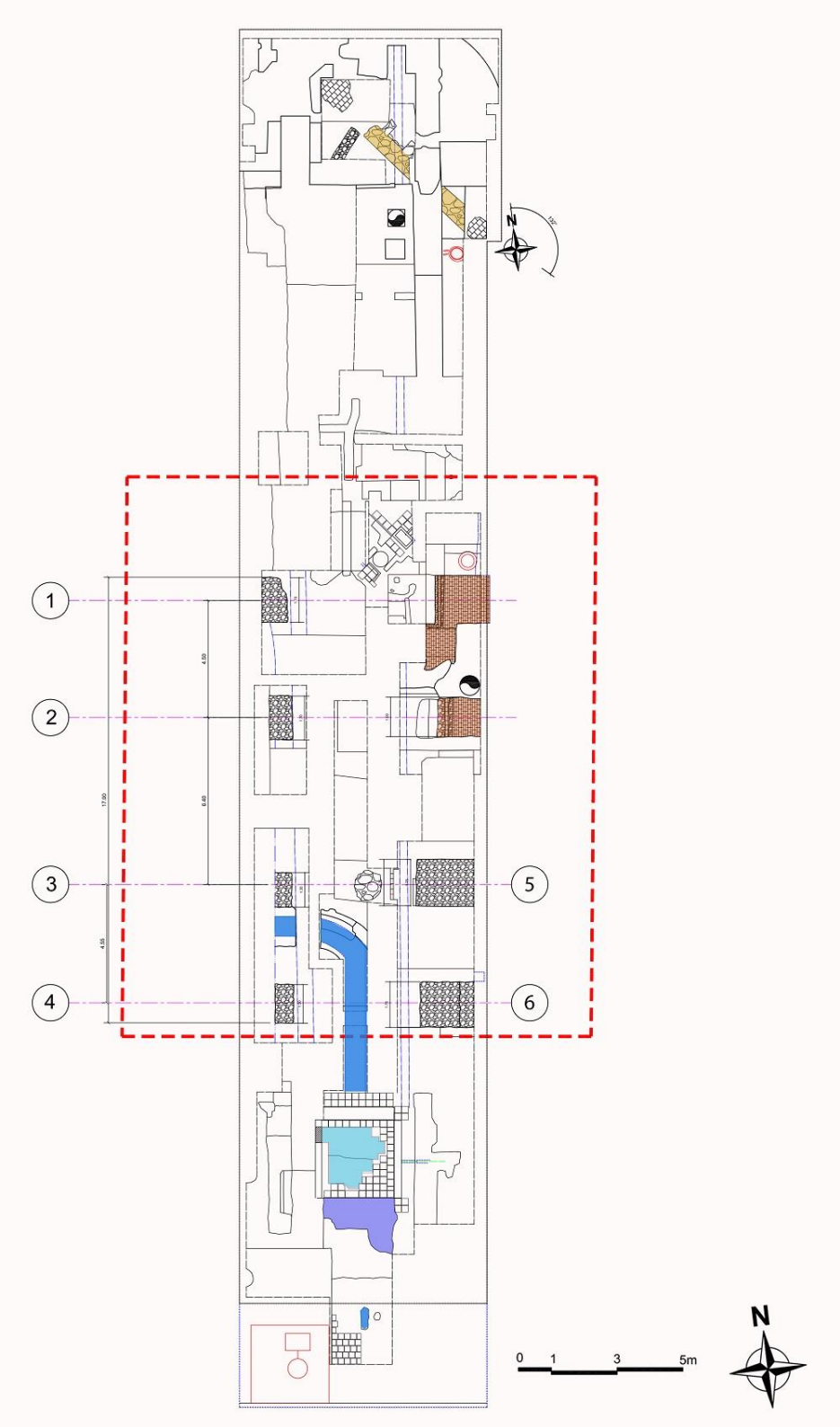

Figure 125: Redrawing of the Jahan Nama palace excavation plan;, yellow colour shows the diagonal wall, brown colour shows the two different foundations of the palace which are possibly attributed to the Buyid dynasty, dark blue shows the central water channel n Chahar Bagh, light blue shows the palace's front pool, and purple shows the cascade in front of the palace (After Abdolmohammad 2014)

Figure 126: The excavated central channel in front of the Jahan Nama palace, the right image shows the continuation of the water channel toward the west (photo taken by author in April 2014)

Figure 127: The discovered pool in front of the Jahan Nama Palace (Photo taken by author May 2014)

9.5- Conclusion

From what has been discussed so far, Chahar Bagh Avenue as the core of the development of Isfahan's heritage character during the period of Shah Abbas tells the story of a life based on many years of history. The main objective of this chapter was to show how the palace gardens along the Boulevard, an arrangement given complete and finite form during the Safavid dynasty, was gradually destroyed over time through complete insensitivity towards the heritage.

The analysis of the evolution of a set of plans from 1780 until 2008, shows that demolition of Chahar Bagh Avenue and its surrounding gardens would have started under the Qajar, when Zelle-Sultan began selling the palace gardens and uprooted the trees along the Boulevard. This can be seen from the comparison of green areas along the avenue in John Chardin's map from the late Safavid period and the 1919 map of Sultan Reza Khan. The last map I have collected on the current situation of the Chahar Bagh shows plot division along the whole Avenue in the place of the Safavid gardens. Investigating the beginning of this transformation in the structure of Chahar Bagh led me to the analysis of the age of buildings along Chahar Bagh, drawn by Bavand Consultants in 2008. Nearly 48 per cent of the buildings were more than 40 years old, indicating that the mentioned plot divisions would have begun during the Second Pahlavi ruler's period (1941-1979). The next plan I have analysed from the Pahlavi time (1968) strengthened my investigation regarding the beginning of the plot division along the Avenue. Given that information regarding the Pahlavi modern development proposals depicted how these modern strategies revived the Isfahan and on the other hand how the lack of consideration of the impact of modernisation irrevocably changed the character and structure of the Chahar Bagh Avenue.

As the main means of transportation in the post-Revolution period, vehicles have provided easy access and stronger connections between new urban developments and historical sites, the social-cultural heart of the city. Nevertheless, the lack of urban assessment led to problems with vehicular traffic, which affected negatively some of the heritage sites such as Chahar Bagh Madrassah due to the high levels of noise and pollution. Urban assessments would necessarily need to be more complex in historical sites in order to fully take into account the diverse factors and evolution over time. Appropriate assessments could have stopped inappropriate constructions

such as the Jahan Nama Tower and the Metro Lines passing through the Chahar Bagh.

Allowing heritage and modernisation to coexist is a great challenge in all historical cities around the world. A comparable example to the Isfahan Metro Line B/1 is found in the Metro Line C of Rome, the city which is famous for its UNESCO World Heritages sites. Construction of the Metro Line C was more complicated compared to Metro Line B/1 in Isfahan as it affected 40 categories of valuable historical buildings (Rotundi and Sorge 2015: 1-17). However, the appropriate strategies which were employed – included research methods for preservation of monuments-, bespoke design solution for construction techniques-, and careful attention to construction of station buildings, ventilation shafts, digging deep tunnels, constructing of entrances to the stations, etc., which meant that the activities that took place had reduced impact on the heritage sites (Rotundi and Sorge 2015: 1-17).

Reduction in the height of the Jahan Nama tower and required rerouting of some lines of the Metro would confirm that the new urban development, without due consideration of traditional structure, would not be a successful development.

Differences between the successful urban development plan of Shah Abbas and the modern developments are not only related to the essential differences between the motivation and the source of inspiration in the new developments, but more related to the way they were planned and practiced on the ground. According to Falahat, "the success plan of Shah Abbas plan was appropriate by inhabitants based on the regulation derived from their indigenous life-world" (2014: 19). This fact underscores the need for social studies and careful planning in designing new structures for historical cities like Isfahan before undertaking any action. Misusing the opportunities of the 'free economic market', advanced technology, and political, cultural and social changes contributed to destroying the perfection of Chahar Bagh and degeneration of the whole Safavid idea while all the highlighted factors were constructive factors before the epoch of modernisation. What remains these days is just a street covered by deli shops, shopping centres, cinemas, and some parts of the Safavid Hasht Behisht Garden.

Epilogue

10.1- Concluding Notes

10.2- Contributions to Knowledge

10.3- Areas of Future Research

Chapter 10: Epilogue

10.1- Concluding Notes

Given the importance of the construction of Chahar Bagh in the configuration of the urban pattern of Isfahan, this research has highlighted the crucial factors that contributed to the development of Chahar Bagh by tracing the formation process of this garden and the structuring central 'Boulevard' from its origins in the Safavid period, followed by an account of the gradual degeneration of the Chahar Bagh from the late-eighteenth century onwards. However, considerable attention is also given to the city's early morphology following the advent of Islam, bringing together fragmented information across several accounts.

Pre-Safavid Isfahan was an irregular – i.e., non-geometric – arrangement of the urban components, a feature in marked contrast with the configuration of the Safavid plan dating from the seventeenth century. This thesis began with the genesis and evolution of Isfahan with emphasis on the Safavid pattern of urban organisation, which introduced the Chahar Bagh as the main focus of this study.

Chapter 2 addressed the early formation of Isfahan following the Arab invasion in the seventh century CE. Isfahan consisted of two main settlements of Yahoudie and Jay, which today are identified as the area of Shaharestan village located to the north of the Zayande Roud River, to the east side of the modern city. After the arrival of Islam in the eighth century CE, the foundation of Isfahan rested on a region between Yahoudie and Jay known as Khouznian. An Islamic pattern of a city was thus established some distance from the previous ones, emphasised by the construction of a mosque and the old maidan in the Yahoudie area, located on the opposite side of the Abbasid Palace in Khouznian. The two focal points - the mosque and the maidan, therefore, were the main outcomes of the early-Islamic reorganisation in Isfahan.

Under the Buyids (976–983 CE), the city took its next important step in urban development; this was the period in which the city gained its first structure through the construction of the city walls, gates, neighbourhoods, main roads and the central square. This flourishing process of urban development continued later into the Seljuk period, up to the thirteenth century CE, when the Mongols occupied the city and governed it for almost two centuries. At the macro scale of city organisation, the

main components of the pre-Safavid city pattern were the Great Mosque, the city wall and the old maidan.

Under the Safavid ruler, Shah Abbas I Isfahan experienced two new phases of urban development - the first of which was when he moved the capital from Qazvin to Isfahan in 1597. This development comprised two phases, of which the first phase included the construction of the New Maidan (Maidan-I-Shah), the Chahar Bagh and the Allahverdi Khan Bridge (1598-1602), and has formed the focal interest of this study. The second phase mainly involved the construction of the mosques in the Maidan and the portico of Qaysariya. Urban development of Isfahan under the Safavid highlighted its structuring around the Chahar Bagh Boulevard by which a new geometry was introduced to the urban pattern of Isfahan.

In employing such a strong spatial organization imbued with both a dominant and memorable physical presence, as well as a schema that was culturally legible, Safavid architecture of Isfahan formed an identifiable and memorable image of a new city. Such urban imageability was articulated many centuries later by Kevin Lynch through the five main elements of path, edge, node, landmark, and districts in his concept of the image of the city. Let us briefly assess how these elements may have shaped the image of Isfahan.

Paths along channels provided the observers the opportunity for observing the city while moving through. The Chahar Bagh as the focal path provided the main axis for the city, which offered an initial framework for the later urban expansion of Isfahan. Edges are considered as linear elements; the green belt of the Chahar Bagh gardens around the Avenue closed off this area from its neighborhood. It further highlighted the powerful landscape of the Chahar Bagh as focal image for visitors. Nodes – strategic spots in a city – which according to Lynch are conceptually small points of intersection (2005: 12). However, in reality, these could be large squares (such as Maidan-i-Shah), or somewhat extended linear shapes. Chahar Bagh axis also acts as a linear node for Isfahan.

Landmarks are reference points to let observers distinguish their way. These may be within the city or at such a distance that for all practical purposes they symbolize a constant direction. Examples of these are towers, domes, or great hills. In the case of the Chahar Bagh, the blue domes of the Madrassah and Mosque of Madar-i-Shah as well as the dome of Masjed-I Shah in new Maidan, provided people to distinguish their way to the Chahar Bagh within the city. As it has been discussed, landmarks are

usually simply defined physical objects. However, on the urban scale, the Chahar Bagh and its surrounding gardens acted as a green landmark for the entire city of Isfahan.

Districts are the medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of," and which are recognizable as having some common, identifying character (Lynch 2005: 41). Thus, the whole area of the Chahar Bagh (from north to the south part of the river, colored in dark brown in Figure 15), could be considered as a district for the city which provided a different sense of a place for observers through water and shade, representing the image of paradise for the desert isolated city of Isfahan. Therefore, it is true to say that districts are structured with nodes, defined by edges, penetrated by paths, and sprinkled with landmarks in the case of Chahar Bagh.

Chapter 3 explored how the north-south axis of the Chahar Bagh was established from the north, from the Jahan Nama palace, and imposed the four-quartered (*chahar bagh*) paradisiacal garden organisation on the city by crossing over the Zayande Roud River, which offered an additional transverse axis. It terminated in the gardens of Hizar Jarib to the south, a garden avenue with central paved pathways for pedestrians, flanked by rows of trees. The central water channel and pools were used to irrigate the 30 or so surrounding gardens, as well as representing the image of a paradisiacal garden that structured the new city. Some of the gardens and palaces along the Avenue were used as leisure grounds and coffee houses by the public. This avenue formed a connection between the north and south parts of the city across the Allah Verdi Khan Bridge. In reviewing the extant literature in chapters 2 and 3, I indicate how the material, apart from being fragmented, is also devoid of a detailed understanding of how precisely the unique character and structure of the avenue, Chahar Bagh, developed under Shah Abbas I. The literature is largely silent on how the garden revived ancient pre-Islamic Persian practices and understandings, and incorporated subsequent refinements undertaken across the Islamic world. What strands of these wide-ranging traditions were actually incorporated into the scheme was the subject matter of subsequent chapters.

Chapter 4 analysed the terminological aspects of "*chahar bagh*", which consists of two words - "*chahar*" meaning 'four' in Persian, and "*bagh*" meaning 'garden', and clarified that "*baagh*" in the context of the pre-Islamic Zoroastrian culture of Iran is a portion of property divided into different parts, planted by trees and flowers,

suggesting the origins of the quadripartite organisation that was later formalised. Iranian Royal palaces were usually located within their own green enclosure, a feature of which has been described as *Pardis* – later Paradise in English – taken from ancient phrase, "*pe ara deasa*", meaning 'enclosed by walls'. This feature in smaller scale applied to Iranian style of houses architecture.

Archaeological studies have highlighted Pasargadae garden as the initial example of the pre-Islamic garden, fragments of which are still extant, which represented the original concept of the *chahar bagh* garden, spatially. This oldest Persian garden dating back to 529 BCE in the capital of the Achemenid ruler, Cyrus the Great, is a symmetrically disposed rectangular enclosure in which order, including arrangement, hierarchy and geometry, along with the components of pavilion, water, wall, pathways and plantation, characterised the archetypical *chahar bagh* pattern. This pattern has been continued in later Sassanid gardens and applied subsequently to the gardens of Islam following the invasion of Arabs into Iran in the seventh century CE. Comparison of the key components of the ancient prototype with the Chahar Bagh arrangement in Chapter 4 clearly showed that the transmission of pre-Islamic gardens to the Islamic world involved some significant innovations in the evolution of ideas surrounding the Persian garden. This, as the subsequent chapter argued, was the result of a series of refinements across the expanding Islamic world (eighth century to the twelfth century), which the Chahar Bagh project eventually synthesised.

Chapter 5 studied the order of gardens in Islamic Syria, Spain and Morocco, which while showing a broad continuation of the geometry and order, also demonstrated an extreme emphasis established on the cross-axial layout about a 'centre' in the Islamic gardens of Syria and further west. Mostly set within rectangular enclosures, these highlighted a particular ideogrammic representation of the paradisiacal aspect that gradually became prevalent under Islam – a garden where the mythical rivers of *milk, honey, water* and *wine* divided the land into four quarters. Elevated walkways and pavilions, sunken patches of landscape, and the manifestation of water fountains, were the main innovations in the layout of this now recognisable *chahar bagh* pattern, making their first appearance in Syria and later in Spain, Sicily and Morocco. Emphasis on the decorative aspect of water in order to explain the Qur'anic image of the Paradise is remarkable in such gardens. Notably, the innovation of a specific type

of courtyard garden has been found in Spain, which was later transferred to other places around the world.

My attempt to trace the chronological evolution of this garden paradigm took me next to the Timurid gardens in Samarqand, Herat and then to the gardens of Kabul in Afghanistan created by the Mughals, and later in India between the twelfth to the fifteenth centuries. Chapter 6 highlighted transformations of the *chahar bagh* layout under Timur, which was related to the creation of terrace gardens, with emphasis on the symmetry about the main axis and a resulting new *chahar bagh* paradigm, in which the location of the pavilion was transferred to the highest level of the land at the far end of the garden. Construction of palaces following the new function of the garden as a place for holding royal ceremonies was an additional Timurid innovation. Elevated walkways and a focus on the aesthetic aspect of water in ponds and pools consisting of fountains show a continuation from pre-Islamic and early-Islamic times. Descriptions of fruit trees, such as mango, cherry, apple, seedless mulberry, almond, and sweet orange in the quadripartite divisions, and cypresses, sycamore and poplar trees along the walkways, show the importance of plantation as inseparable from the nature of gardens over the centuries.

Although the construction of both the Shalimar and the Taj gardens happened in the later-Islamic time, a brief analysis of these provided me a more detailed understanding of the image of the paradise they represented, a concern central to the Chahar Bagh.

The analysis of *chahar bagh* gardens from generation to perfection offered a coherent history of *chahar bagh* garden to highlight the changes, and yet at the same time, to underscore the philosophical constancy reflected through aspects of the order, its elements and plantation. Studying how these constancies and changes were reflected in the Chahar Bagh Avenue in Isfahan was the main aim of Chapter 7. As I highlight, Shah Abbas I was greatly influenced by the Timurid architecture of heart, where he was born and grew up until he ascended the Persian throne. Comparison between the urban pattern of Timur's Herat with Isfahan is a striking one: the Chahar Bagh Avenue extending across the Zayande Roud River closely parallels Gozar Gah Avenue in Herat, which spans the Enjil River. The location of the Hizar Jarib garden as the termination point for Chahar Bagh could be found in Herat in the positioning of the Bag-e Sahr garden, where the Gozar Gah Avenue ended. Finally, the Mosque and the Madrassah Shah in Chahar Bagh as the key religious and cultural

components of this boulevard parallel the Mosque and the Madrassah Gowhar Sadr in Herat. However, in the Chahar Bagh, Shah Abbas I considered a number of innovations which also highlight the distinctive quality of the Chahar Bagh and the Safavid urban pattern. These remarkable features could be seen in the continuity of the gardens along both sides of the Avenue as well as the type and location of trees along the Boulevard. Commercial, educational and religious, as well as recreational activities took place in Chahar Bagh and made this a dynamic axis within the city.

The great influence of Timurid *chahar bagh* pattern in the layout of Chahar Bagh in Isfahan was arguably the emphasis on symmetry along the longitudinal axis. The Chahar Bagh central walkway consisted of a central water channel, which fed the catchment pools – eight I total, in various configurations – along the Boulevard. The location of Jahan Nama Palace, from which the entire avenue and its surrounding gardens could be surveyed, represented a novel addition to the Timurid *chahar bagh* arrangement by Heravi in the Safavid Chahar Bagh.

The early Mughal gardens of Kabul created by Babur and those in India created by the later Mughal rulers emphasised the configuration of the paradisiacal image of the *chahar bagh* that comingled the Islamic concept of an ideal city through the surrounding gardens as parables of heaven. The Qur'anic explanation of Paradise as a place full of trees, consisting of a pavilion underneath which water flowed and the people were protected from evil, was similar in concept of the ancient Persian *chahar bagh* gardens of the Achaemenids. Islamic gardens imposed a stronger sense of geometric organization through the division of the area into quarters by means of four water channels within a walled private enclosure. *Chahar bagh* as a place full of trees set within gardens irrigated by water streams, introduced the paradisiacal garden image on a significantly larger scale in Isfahan. Here, religious beliefs, underpinning all cultural expressions, inspired the gardens of the Safavid in Chahar Bagh. For the people of Isfahan – a city in the middle of the desert – the image and experience offered them by the *chahar bagh* evoked and reiterated the perfection of Paradise. As an example of such experiences, one could point to the sense of privacy that led to the creation of courtyard gardens, which followed the structure of palace gardens in a compressed scale, made distinct from the public nature of the main boulevard and other other expansive gardens.

With the aim of understanding further the symbolic interpretation of Paradise in Iranian art, for gathering reliable data on flora and fauna employed in the design, as

well as for comprehending the activities that went on in gardens, such as the Chahar Bagh, I analysed a number of miniatures and carpets in Chapter 8. Carpets are appropriate representative examples of Iranian beliefs in the creation of the gardens as the fundamental aspect of a cultural environment. The love for making gardens became the main theme within the design of Iranian garden carpets. Garden carpets consisted of *Golistan*, *Kheshty Toranj & Lachak Torang*, and *Golafshan* types. Two examples of *Golistan* carpet from the Victoria and Albert Museum – both structured on a perpendicular axes pattern – and one at Glasgow Museum with a three axes pattern – highlighted the order employed in the creation of the *chahar bagh* gardens, which emphasised geometry and hierarchy. The *Kheshty* type of garden carpets highlighted the geometrical patterns used in the plantation schemes as the result of the irrigation systems employed. They also show some particular types of trees and plants, which have specific meaning in Iranian cultural beliefs. *Chahar bagh* garden carpets represented the image of Paradise; this could be seen in the '*miharb*' motifs of *Golafshan* carpets in the representation of a space full of trees, water streams and birds framed as a sanctuary.

Analysing miniatures as another typically Persian form of art highlighted the key elements of garden design. These miniatures could be categorised into three groups: the first group represents the celestial image of gardens; the second group illustrates garden elements including wall, water channels, ponds, pools, gate, pavilion, and plantation; the last group shows some of the elements that were characteristic of gardens, as well as human activities within the garden. The analysis of carpets and miniatures highlighted that although the Persian gardens were inspired by people's cultural beliefs, in turn they strongly influenced the art of the time, including poetry, and literature as constitutive features of Iranian culture.

Analysis of the current situation of Isfahan in the last chapter provides an account of the degeneration of this masterpiece, which began during the Qajar dynasty and has continued into post-revolutionary times of the late-twentieth century. During its long existence Isfahan had been the capital of two major dynasties: the Seljuk (1072-1092) and the Safavid (1502-1736). Under the Qajar, Isfahan ceased to be the capital any longer as the capital was moved to Tehran; maintaining the Safavid buildings therefore proved difficult, as these were no longer in active use. The demolition process of Chahar Bagh started under Zelle-Sultan, the ruler of Isfahan, who sort to raise revenue by selling the palaces, trees and even marble fountains of the Safavid.

The heritage of the Safavid garden city was transformed into the industrial city that it is today, and a new form of urban design was applied to Isfahan. This destruction was demonstrated through the comparative analysis of Chardin's map of Safavid Isfahan dating from 1780 and the Reza Khan map of the Chahar Bagh from 1919, a valuable late-Qajar record.

Analysis of a series of maps dated back to the post-revolutionary time, collected during my fieldwork depicted plot divisions in the original location of the palace gardens of the Safavid. Exploring the start of these divisions and possible reasons behind them led me to the analyses of the construction's age map of the Avenue. A comparison of the 1968 proposed urban development plan for Isfahan with the late-Qajar plan showed the fading away of the Safavid gardens in the Pahlavi period. Just under half of the buildings along the Avenue are more than 40 years old, confirming that the plot divisions will have happened during the second Pahlavi period (1941-1979).

The new urban strategies which came into force under the Pahlavid rulers was also studied. The new residential development strategies of the Pahlavid encouraged the clearance of slums in urban areas. Those who demolished their old houses and built new ones were exempt from paying tax for three years. This strategy, however, proved to be an ill-considered one, as landowners subdivided their land into smaller plots to sell, thus benefiting from this. The buyers, in turn, built multi-storey buildings on the land they purchased for even greater financial gain, in the absence of any comprehensive urban control,.As a result, the remnants of the Chahar Bagh gardens in the form of agricultural and open land, which could still be seen on the 1919 map, was altered to the plot divisions of the present day. The imposition of the vehicle as the main means of transportation in modern times led to the construction of a number of wide streets cutting across the Chahar Bagh to provide easy access between the cultural/historical part of the wider city regions.

Issues surrounding the preservation of the heritage became more critical during the post-revolutionary Islamic Republic. Introduction of the Metro and construction of the Jahan Nama Tower are two examples of projects that exacerbated this issue. The inappropriate scale and height of the Jahan Nama Tower did not follow the UNESCO guidelines for the Chahar Bagh, compromising the monumental skyline protected under the UNESCO heritage conservation protective zone criteria. Although the height of the building was eventually reduced to 24.48 metres, its

location close to the Chahar Bagh did compromise the view of the Maidan. The rapid transit Metro system in Isfahan passing under Chahar Bagh Avenue, on the other hand, caused damage to some of the historical monuments in the city, such as Allah Verdi Khan Bridge and Chahar Bagh Madrassah from vibration during constriuction. However, perhaps inadvertently, it also provided an opportunity for the excavation of the foundations of the Safavid Jahan Nama Palace.

10.2- Contributions to Knowledge

This research has contributed to the advancement of knowledge of the Iranian traditional built environment by establishing the significant urban design strategies employed in the Chahar Bagh Avenue during the time of Shah Abbas I and tracing their origins from the pre-Islamic Achaemenid gardens in the Middle East to later Islamic gardens across Europe, North Africa and South Asia. Chahar Bagh was the main civic armature consisting of a main boulevard and several gardens for new Isfahan. It constituted a successful urban framework into which subsequent civic buildings were inserted. The Avenue was flanked by 30 gardens and pavilions with grilled walls, which made this Avenue a public promenade for Isfahan, allowing pedestrians to enjoy the view of the gardens while passing through the Boulevard. The central walkway consisted of a central canal with water dropping in little waterfalls from terrace to terrace and detained in a big rectangular basin edged with onyx. Either side of the canal was planted with a row of sycamore trees that provided shade to the visitors. While descriptive accounts of the Chahar Bagh exist, no concerted effort had been made to understand the temporally and geographically wide-ranging influences that will have shaped the garden.

The second original contribution to knowledge through my research is the establishment of an enriched, multi-disciplinary approach to the study of the evolution of Chahar Bagh gardens from the roots of their creation in the Achaemenid period to their ultimate refinement in the Safavid time. Tracing this rise and fall has been discussed through the collection, pulling together and analysis of maps and drawings from pre-Islamic and Islamic times. A careful review of gardens reveal that despite the small differences, most gardens follow the same structure in their component’s location. Gardens mostly have rectangular plans, which have been divided into square or linear shapes. The geometric structure of gardens does not

follow the perspective principles rather were mostly based on creating unity and integrity.

The multi-disciplinary approach is best demonstrated through the study of the close correlation between the physical *chahar bagh* and its varied manifestations in Iranian art - including miniatures and carpets. Exploration of some original features of the garden – that do not feature in architectural analysis – such as plantations, were also undertaken by studying such art forms, as these had changed irrecognizably from the time they were first employed, especially under Western influence. Another revealing aspect of this investigation to emerge from the study of especially miniatures was how people engaged with the gardens in the Safavid times and what activities they carried out. This aspect demonstrates that there has been a close relationship between the human and nature. In that sense, humans were considered as a part of the nature. In Persian gardens, all natural elements have congregated to provide a space, in which people can enjoy and praise the nature.

Considering the gardens of the Middle East, and West and central Asia, on the whole, although scholars have discussed their genesis to a certain extent, they do not actually assess their degeneration over time. Thus, the fourth key contribution to knowledge through my thesis is showing the gradual degeneration of Chahar Bagh in the post-Safavid period through neglect and ill-considered real estate development by analysing and linking a number of maps dating from the nineteenth century to the present day. Identifying an opportunity for further research in the area of Chahar Bagh gardens, I have assembled a catalogue of historical-social-cultural documentation which brings together all maps, drawings and visual representations that have either not been identified or have existed in disparate literature.

10.3- Areas of Future Research

Further research in relation to the development and rehabilitation of the Chahar Bagh is needed. As discussed, from the Pahlavid period to the contemporary times, Chahar Bagh has experienced rapid growth of residential and non-residential developments in the place of previous gardens of the Safavid time. Thus, the question that could be addressed now is one of conservation: whether the character and function of Chahar Bagh as the main promenade for the city could be restired through careful conservation and sensitive urban design.

Finding a solution to the possible threat of contemporary development posed to the Chahar Bagh requires detailed heritage management and development plan through a detailed survey documentation and analysis of the architectural and urban history of the site. The process of planning and land use should be undertaken within an appropriate framework, which would prevent the degeneration of the remaining historical neighbourhoods and monuments as records of the unique heritage of various historical and cultural periods of the city.

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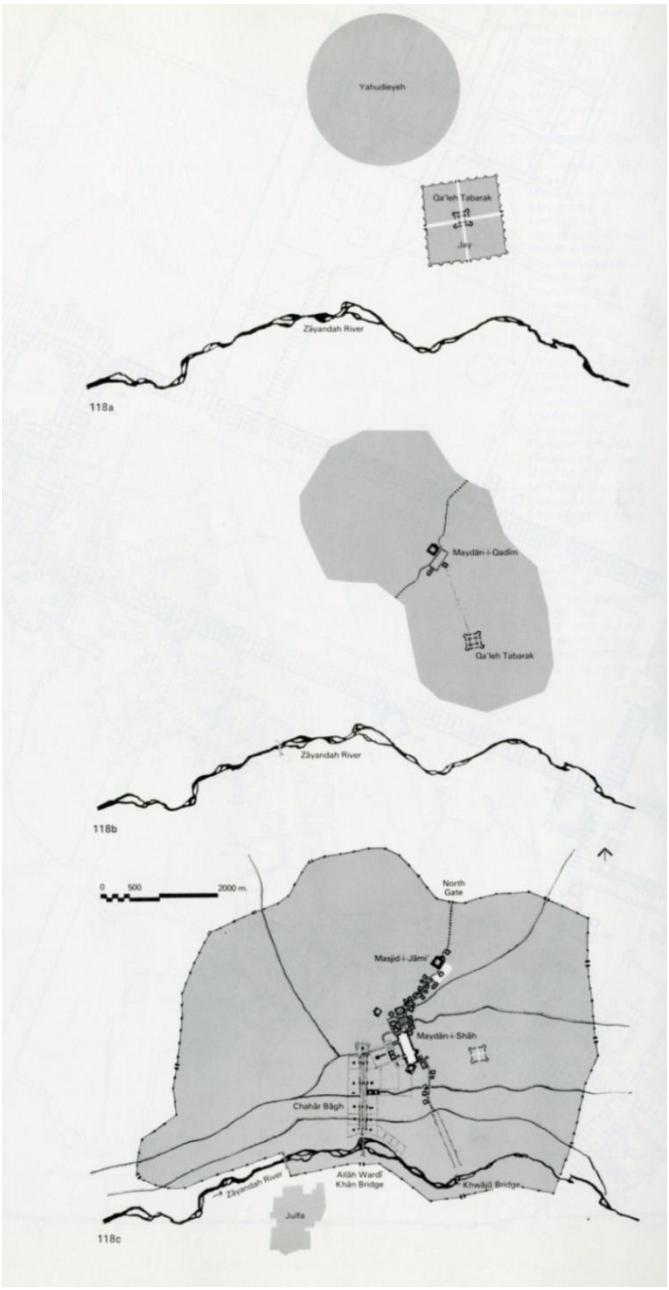
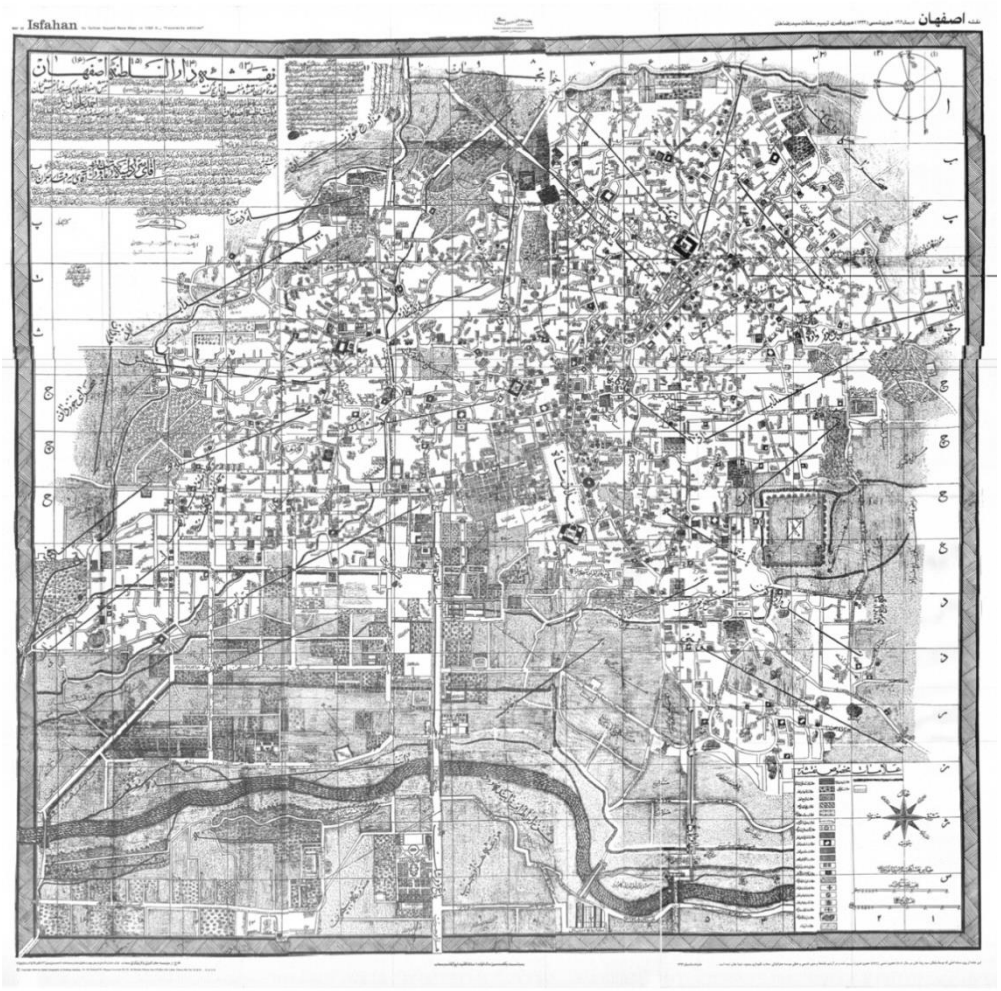
Appendix 1

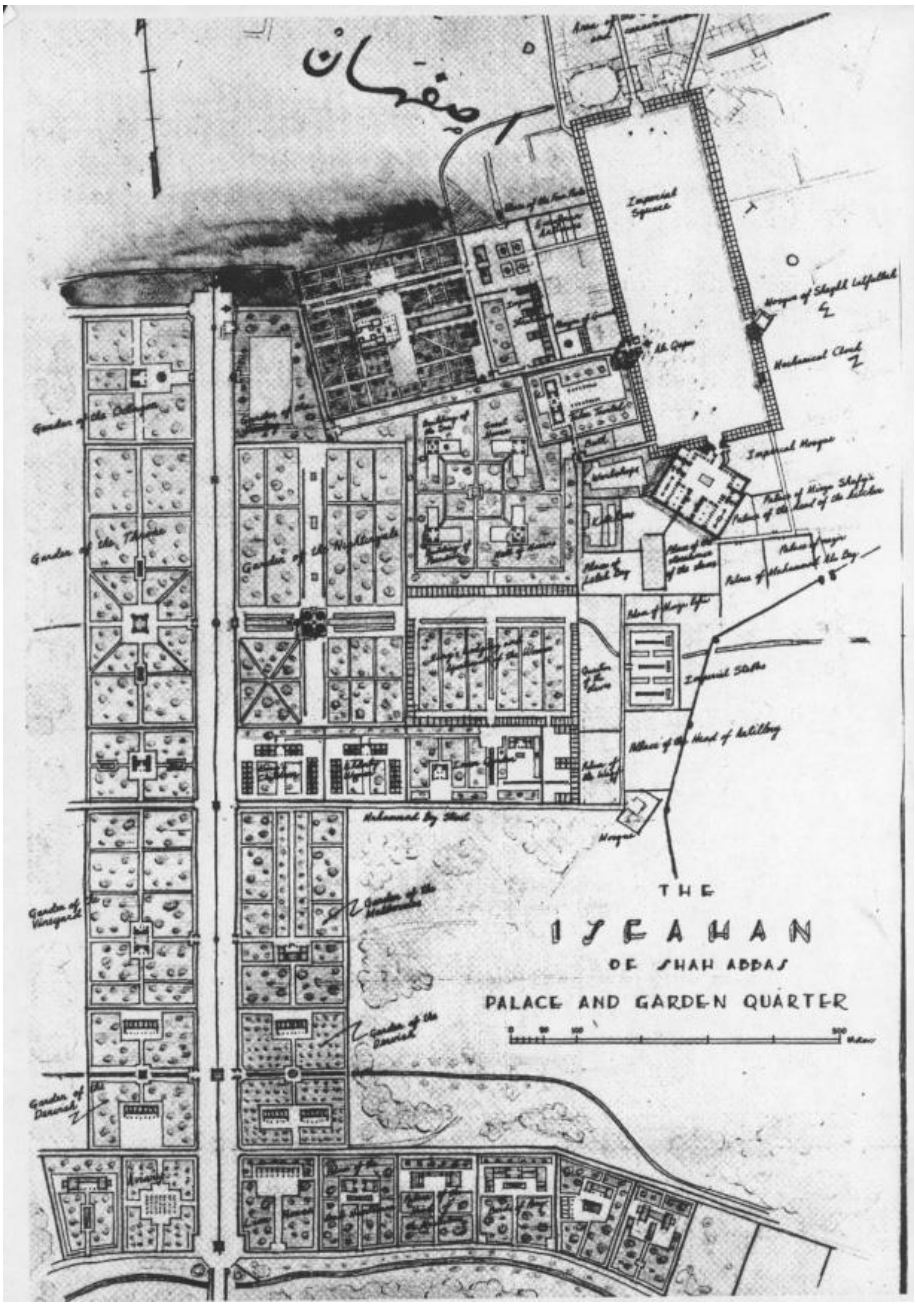


ISFAHAN URBAN EXPANSION	**1**
Document type	Map
Date	1973
Photographer / Painter	Ardalan and Bakhtiar
Resource	ARDALAN, N. and BAKHTIAR, L., 1973
Scale	1:500
Caption	Isfahan movement system



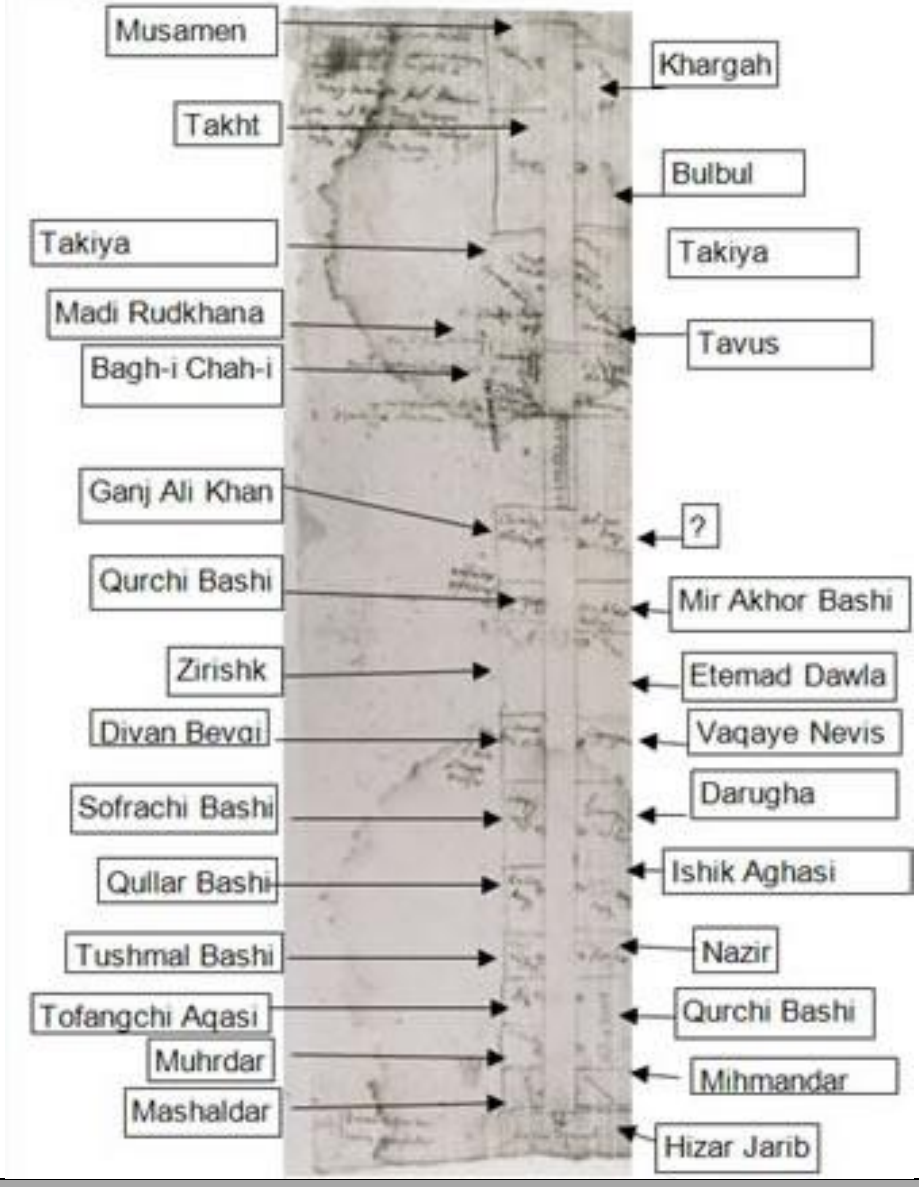
MAP OF THE CITY OF ISFAHAN	**2**
Document type	Map
Date	1919
Photographer / Painter	Soltan Seyyed Reza Khan
Resource	Bavand consultant, Iran
Scale	1:4000
Caption	Seyyed Reza khan Isfahan’s city plan

MAP OF THE CITY OF ISFAHAN	**3**
Document type	Map
Date	1970
Photographer / Painter	Hasan Davoodi
Resource	Bavand consultant
Scale	1:8000
Caption	This plan has been drawn by Hasan Davoodi, graduated student in geography, based on Seyed Reza khan plan of Isfahan

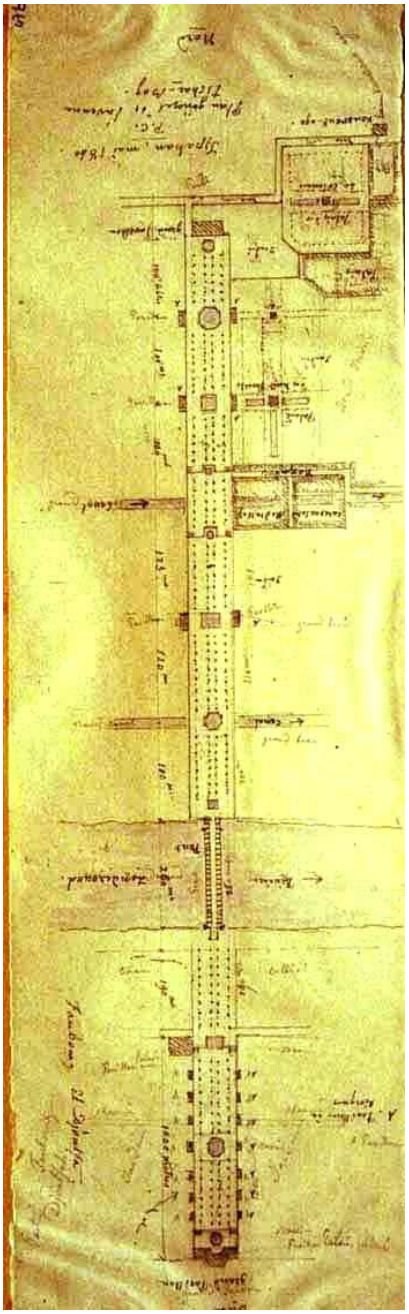


MAP OF THE CHAHAR BAGH AVENUE	**4**
Document type	Plan
Date	Late 17th century
Photographer / Painter	Sir john Chardin
Resource	Bavand consultant
Scale	1:5000
Caption	The geometry of Chahar Bagh Avenue and its surrounded gardens back to the Safavid period, Isfahan

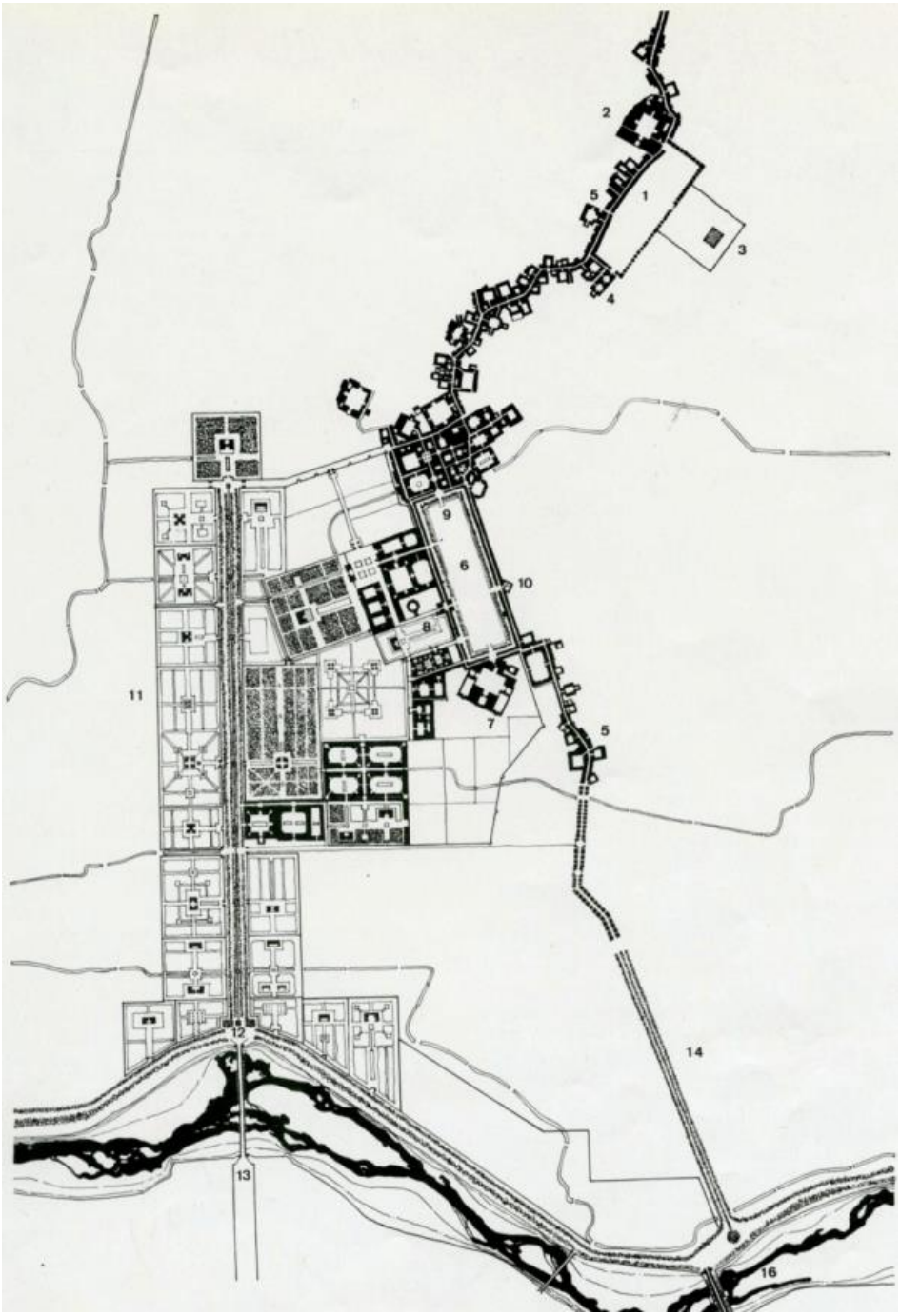
1. plan of Chahrbagh by Engelbert Kaempfer, British Library, Sloane 5232, fol.41



KHIYABAN-I CHAHAR BAGH	**5**
Document type	Plan
Date	1684, 16th century
Photographer/ painter	Engelbert Kaempfer
Resource	http://www.middleeastgarden.com/garden/english/?page=bakdetay&referans=C168&category=catalog
Caption	Plan of khīyābān-i chahārbāgh by Engelbert Kaempfer, British Library, Sloane 5232 fol.41

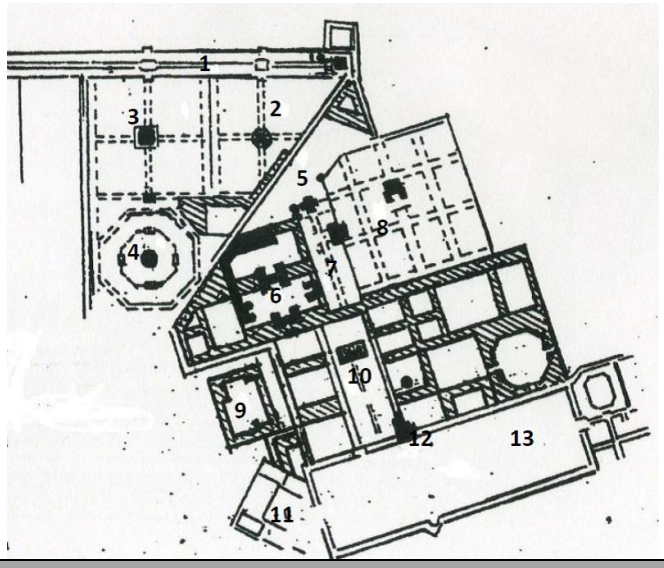


KHIYABAN-I CHAHAR BAGH	6
Document type	Plan
Date	1839-1841
Photographer/ painter	Pascal Coste
Resource	http://www.middleeastgarden.com/garden/english/?page=photo&referans=C168c
Caption	Plan of the khīyābān-i chahārbāgh by Pascal Coste

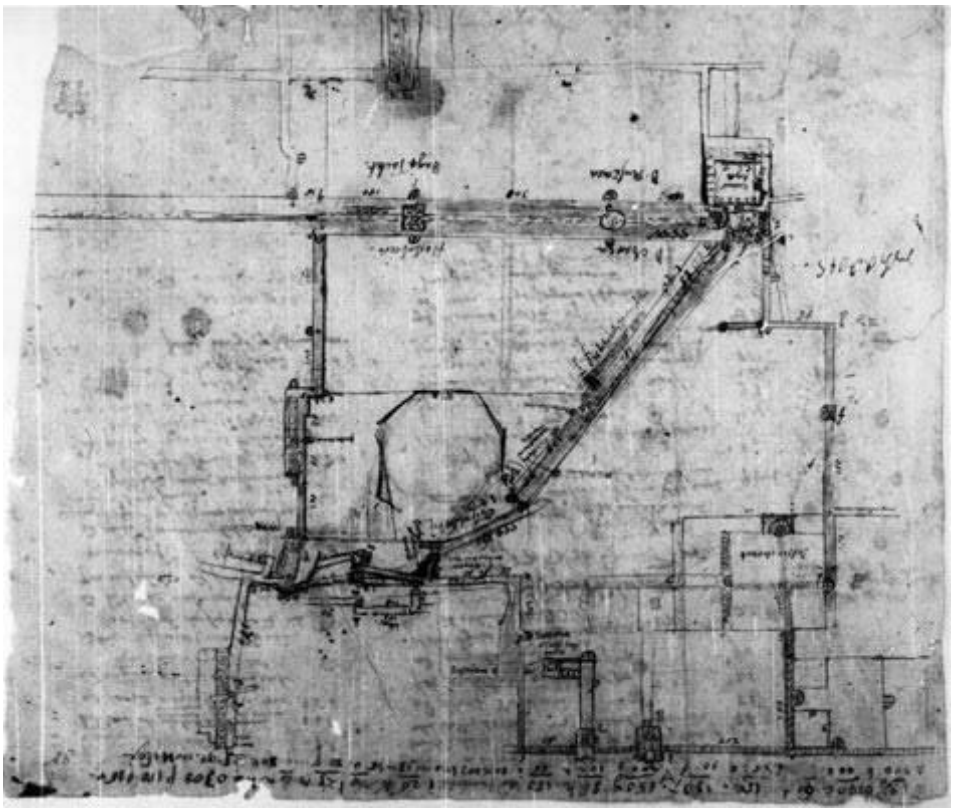


MAP OF THE CHAHAR BAGH AVENUE	**7**
Document type	Plan
Date	1973
Photographer / Painter	Ardalan and Bakhtiar
Resource	ARDALAN, N. and BAKHTIAR, L., 1973
Scale	1:50000
Caption	Isfahan, cumulative realization of harmonic order-making

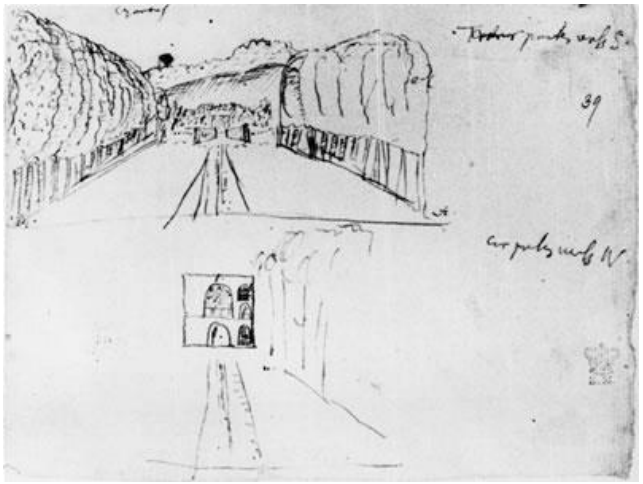
WILBER'S PLAN OF CHAHAR BAGH	8
Document type	Plan
Date	---
Photographer / Painter	Wilber
Resource	---
Caption	The royal complex and the beginning of safavid Chahar Bagh



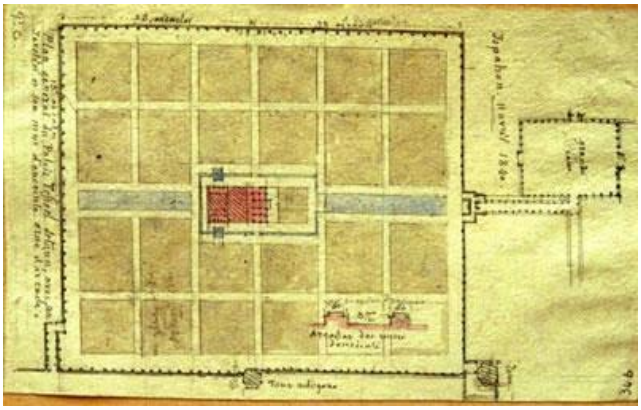
KAEMPFER'S LITHOGRAPH OF CHAHAR BAGH	9
Document type	Plan
Date	--
Photographer / Painter	Engelbert Kaempfer
Resource	--
Caption	The royal complex and the beginning of safavid Chahar Bagh



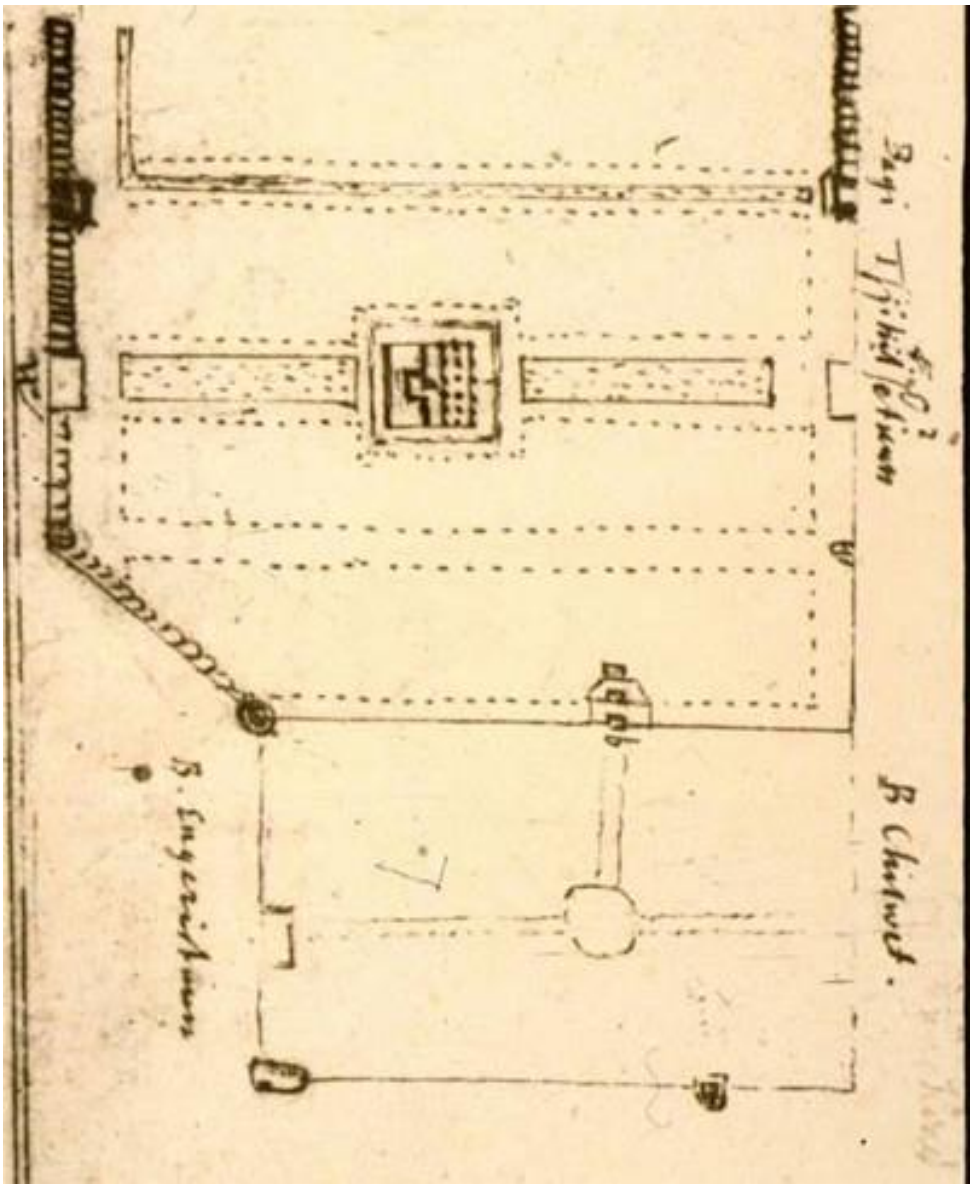
BAGH-I-CHIHIL SUTUN (DAWLATKHANEH)	**10**
Document type	Drawing
Date	1684, 17th
Photographer/ painter	Engelbert Kaempfer
Resource	London, British Library, Sloane 5232 fol.38.
Caption	location of the chihil sutūn garden and bāgh-i guldasta in the dawlat khāna (see arrow) by Engelbert Kaempfer, London, British Library, Sloane 5232 fol.38.



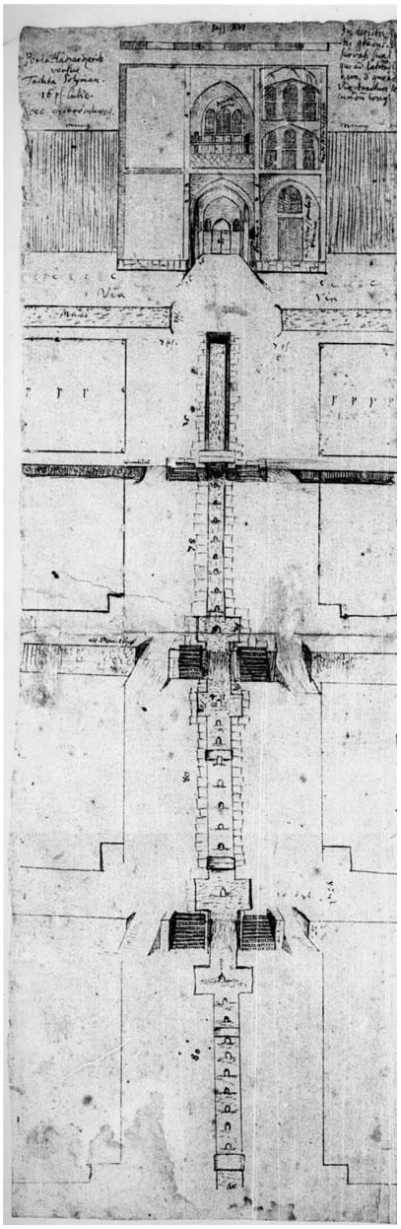
KHIYABAN-I-CHAHARBAGH	11
Document type	Drawing
Date	1684, 16th century
Photographer/ painter	Engelbert Kaempfer
Resource	British Library, Sloane 5232 fol.39
Caption	view southward and northward of khīyābān-i chahārbāgh by Engelbert Kaempfer, British Library, Sloane 5232 fol.39



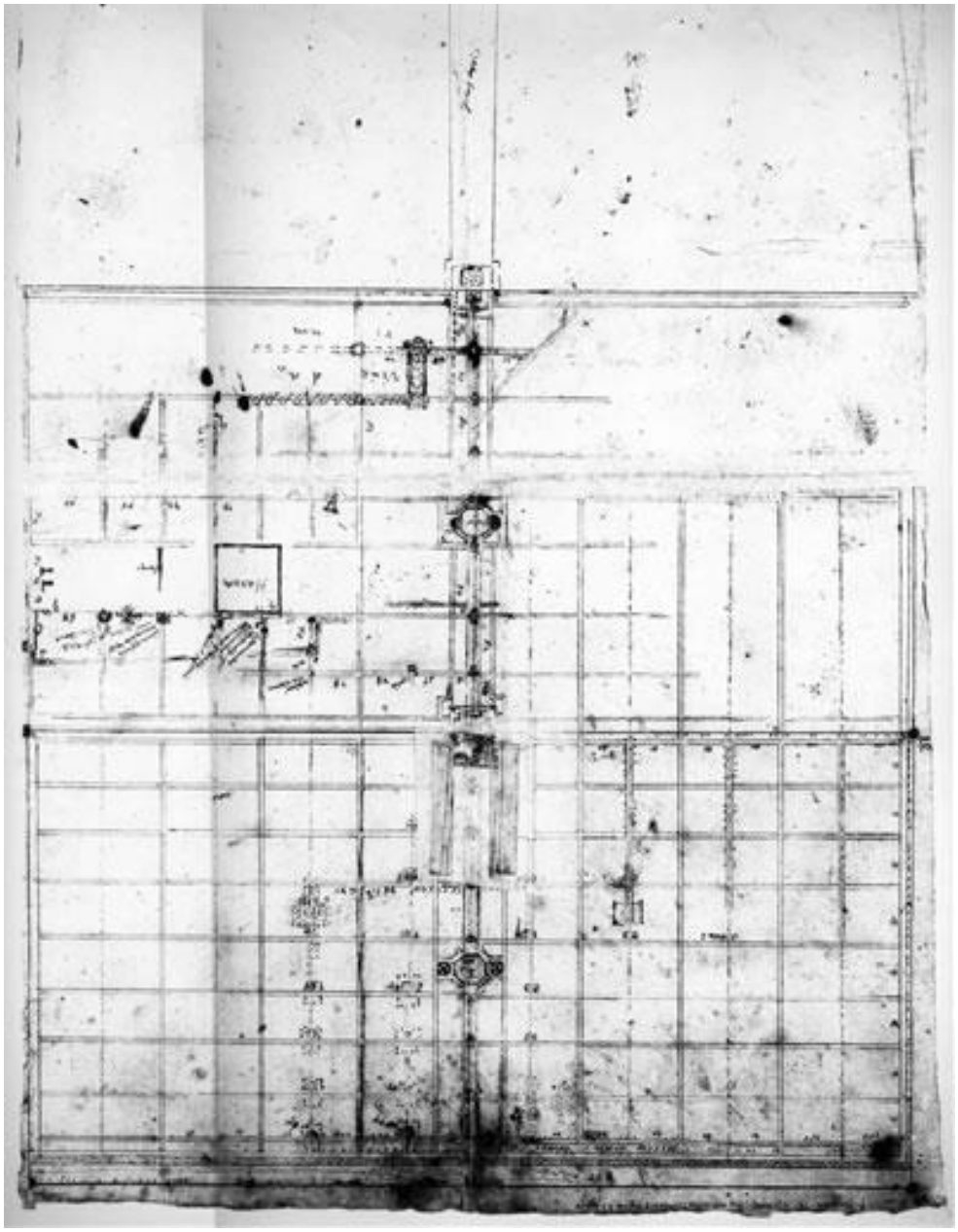
BAGH-I-CHIHIL SUTUN (DAWLATKHANEH)	12
Document type	Drawing
Date	1840
Photographer/ painter	--
Resource	http://www.middleeastgarden.com/garden/english/?page=photo&referans=C176e
Caption	Plan of the chihil sutun garden by Pascal Coste with the octagonal tower in the south eastern angle



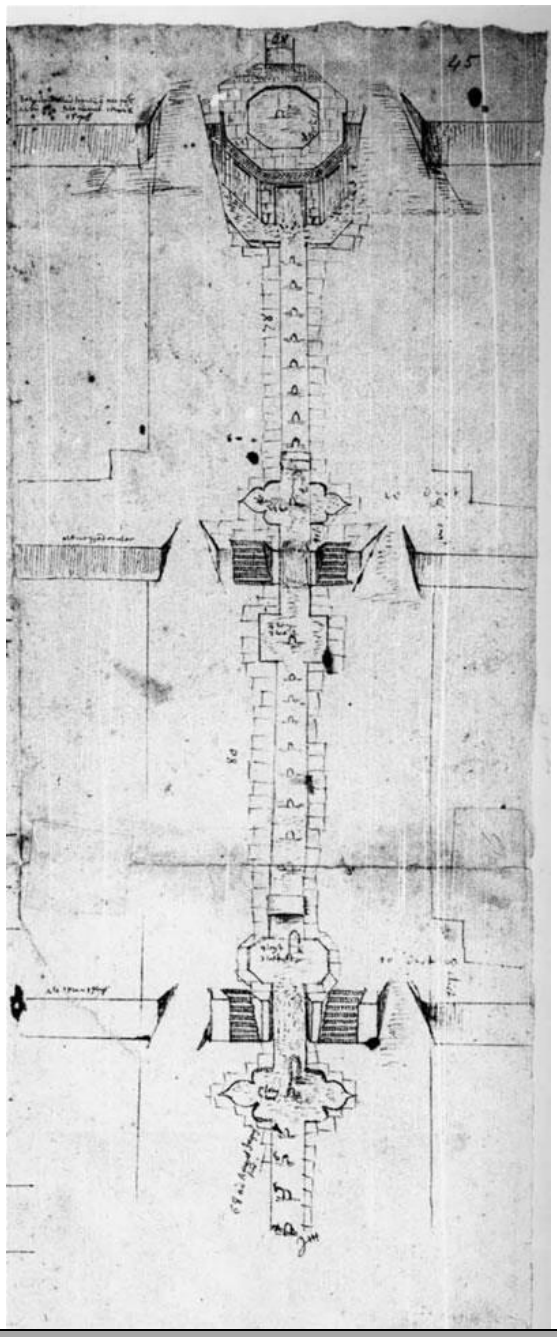
BAGH-I-CHIHIL SUTUN (DAWLATKHANEH)	13
Document type	Drawing
Date	1684, 17th
Photographer/ painter	Engelbert Kaempfer
Resource	London, British Library, Sloane 2910 fol. 102
Caption	b plan of the chihil sutun garden by Engelbert Kaempfer, London, British Library, Sloane 2910 fol. 102



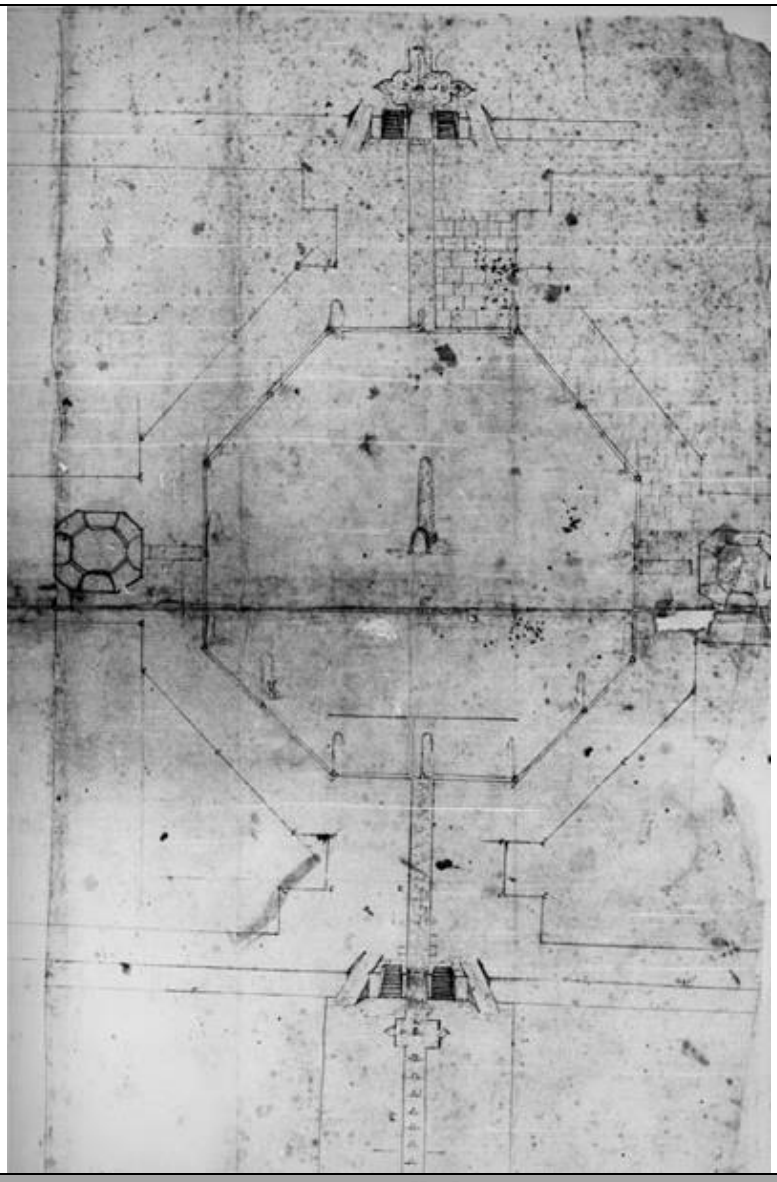
CHAHAR BAGH-I-HIZAR JARIB; called, BAGH-I-HIZAR JARIB and, BAGH-I-ABBAS ABAD	**14**
Document type	Drawing
Date	1684
Photographer/ painter	Kaempfer
Resource	British Library, Sloane 5232 fol.45
Caption	plan of the central canal of the garden starting at the entrance building porta hizar Jarib facing takht-i sulaymān, which stood on the mountain, south of the garden, by Engelbert Kaempfer, British Library, Sloane 5232 fol.45



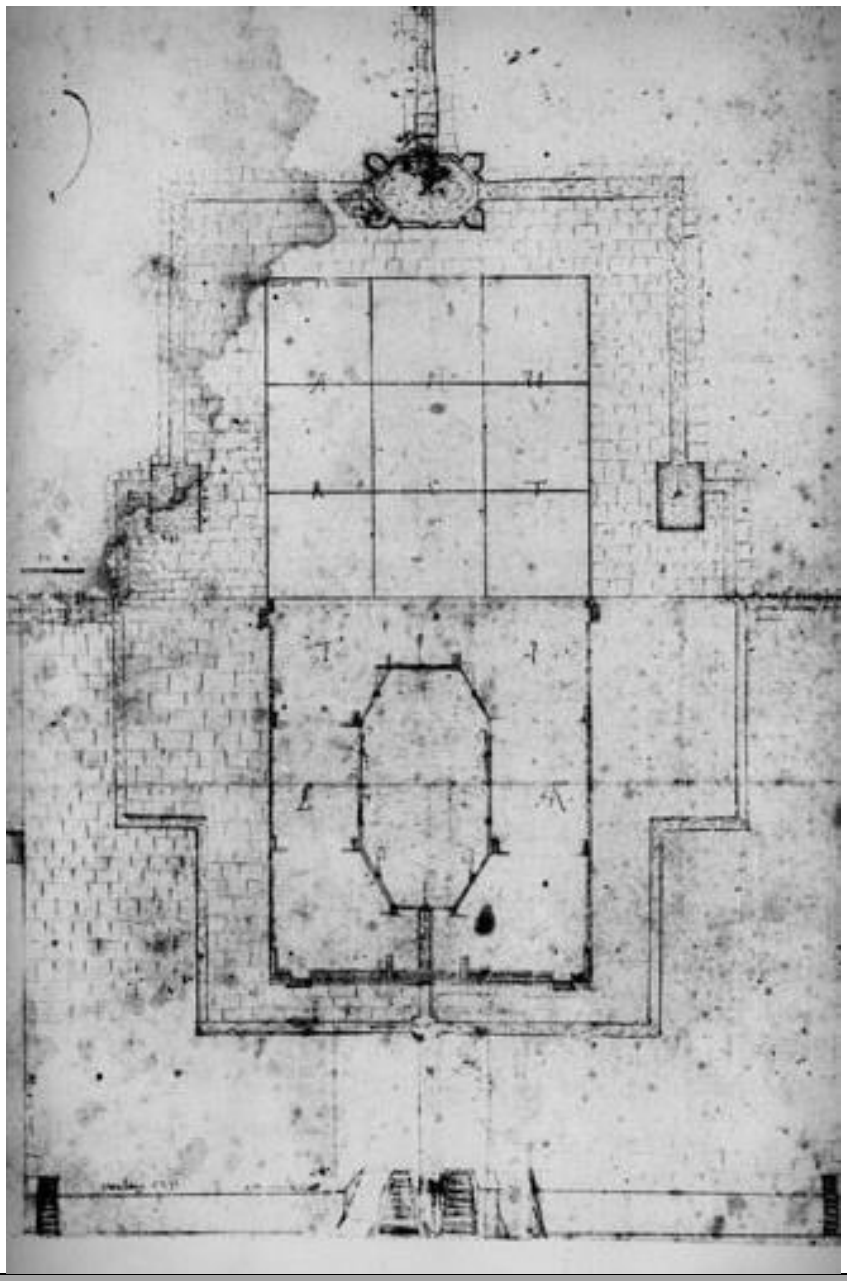
CHAHAR BAGH-I-HIZAR JARIB; called, BAGH-I-HIZAR JARIB and, BAGH-I-ABBAS ABAD	**15**
Document type	Drawing
Date	1684
Photographer/ painter	Engelbert Kaempfer,
Resource	British Library, Sloane 5232 fol.45v
Caption	plan of bāgh-i hizār jarīb shown at the southern end of the khīyābān by Engelbert Kaempfer, British Library, Sloane 5232 fol.45v



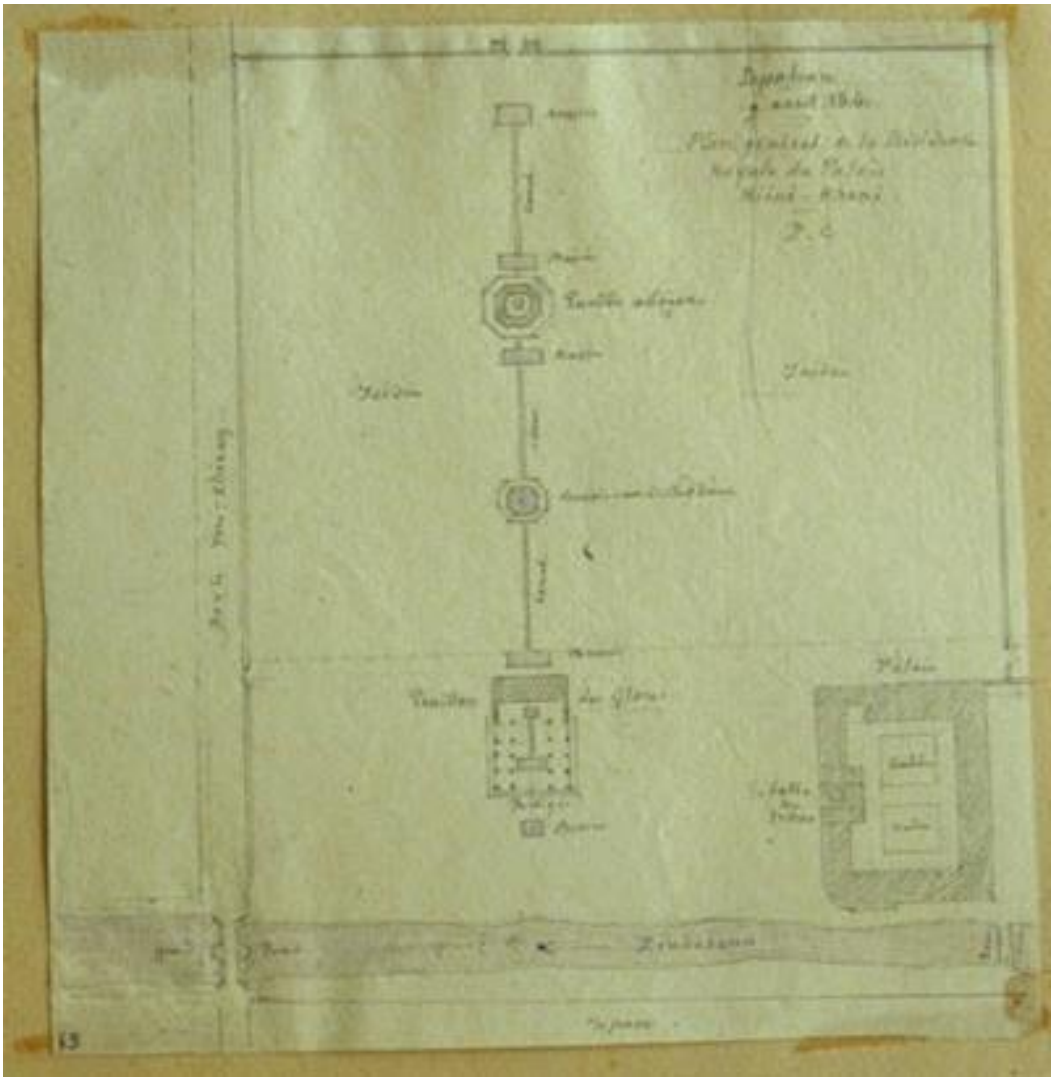
CHAHAR BAGH-I-HIZAR JARIB; called, BAGH-I-HIZAR JARIB and, BAGH-I-ABBAS ABAD 16	
Document type	Drawing
Date	1598-1611
Photographer / Painter	Engelbert Kaempfer
Resource	British Library, Sloane 5232 fol
Caption	continuation of the plan of the central canal: by Engelbert Kaempfer, British Library, Sloane 5232 fol



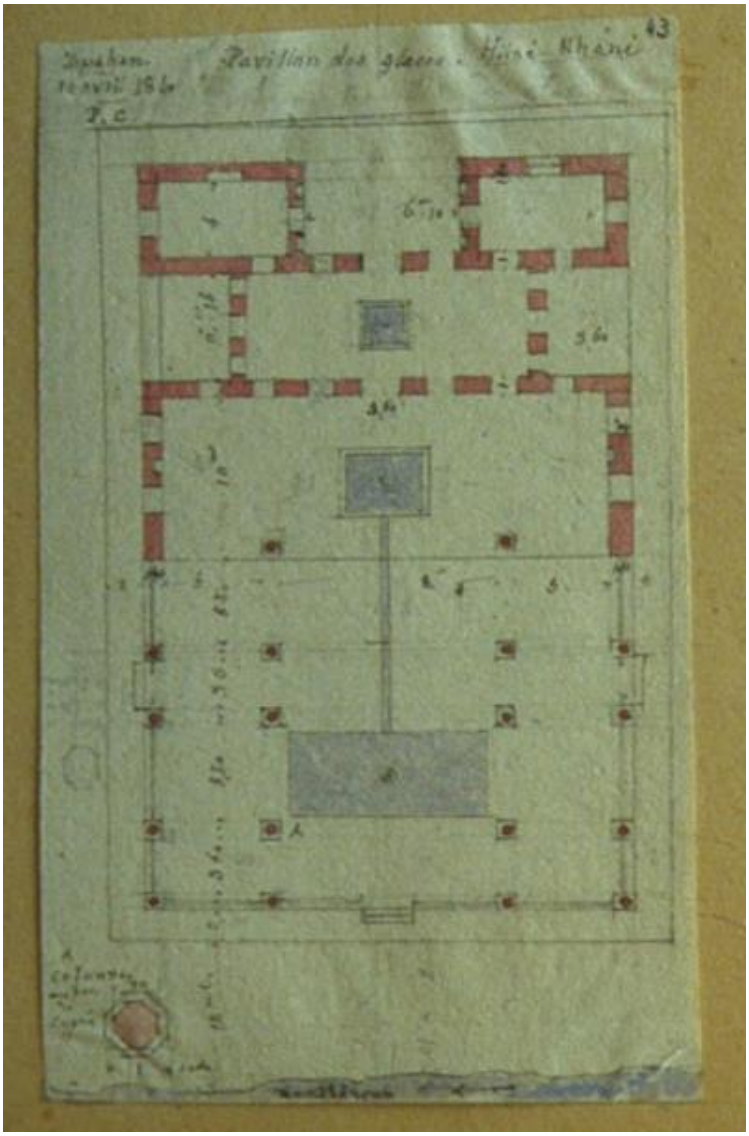
CHAHAR BAGH-I-HIZAR JARIB; called, BAGH-I-HIZAR JARIB and, BAGH-I-ABBAS ABAD 17	
Document type	Drawing
Date	1684
Photographer/ painter	Kaempfer
Resource	British Library, Sloane 5232 fol.43
Caption	contiunation of the plan of the central canal showing the great octagonal basin in the southern garden: by Engelbert Kaempfer, British Library, Sloane 5232



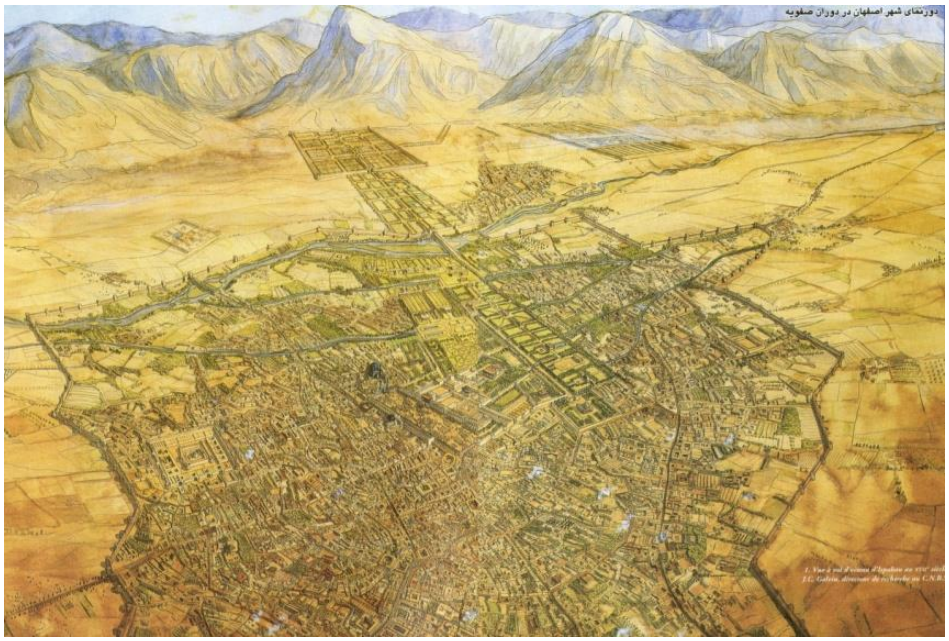
CHAHAR BAGH-I-HIZAR JARIB; called, BAGH-I-HIZAR JARIB and, BAGH-I-ABBAS ABAD	**18**
Document type	Drawing
Date	1615-1617
Photographer /painter	Engelbert Kaempfer
Resource	British Library, Sloane 5232 fol.40
Caption	plan of the main pavilion ʿimārat located along the walls between the two sections of the garden and preceded by a great tālār on its northern side: by Engelbert Kaempfer, British Library, Sloane 5232 fol.40



BAGH-I-HIZAR JARIB-NEW; BAGH-I-SA ADATABAD	19
Document type	Drawing
Date	1840
Photographer / Painter	Pascal Coste
Resource	http://www.middleeastgarden.com/garden/english/?page=photo&referans=C174a
Caption	Layout of bāgh-i saʿādatābād by Pascal Coste, Marseille, BMM ms.1132,fol. 43



BAGH-I-HIZAR JARIB-NEW; BAGH-I-SA ADATABAD	20
Document type	Drawing
Date	1840
Photographer / Painter	Pascal Coste
Resource	http://www.middleeastgarden.com/garden/english/?page=photo&referans=C174b
Caption	plan of the pavilion called āyina khāna in bāgh-i saʿādatābād by Pascal Coste, Marseille, BMM ms.1132,fol. 43



CITY OF ISFAHAN	**21**
Document type	Drawing
Date	17th century
Photographer/ painter	J. C. Golvin
Resource	Amiri 2009: 210
Caption	The prospect of Safavid Isfahan in xviie siecle

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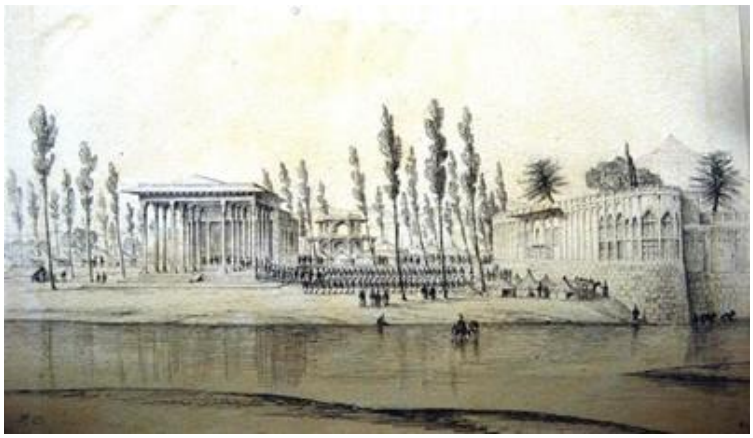
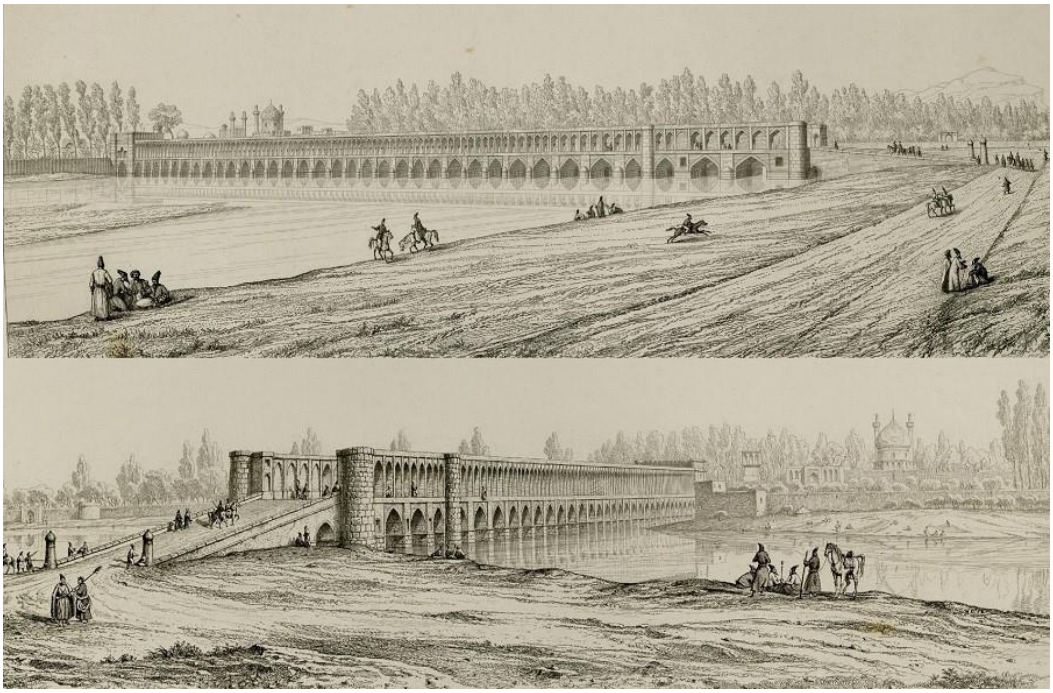


BAGH-I-HIZAR JARIB-NEW; BAGH-I-SA ADATABAD	**22**
Document type	Drawing
Date	1840
Photographer / Painter	Pascal Coste
Resource	www.middleeastgarden.
Caption	General view of the bāgh-i saʿādatābād

KHIYABAN-I CHAHAR BAGH	23
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	http://www.middleeastgarden.com/garden/english/?page=photo&referans=C168d
Caption	View of khīyābān-i chahārbāgh by Pascal Coste, BMM ms.1132 fol.22

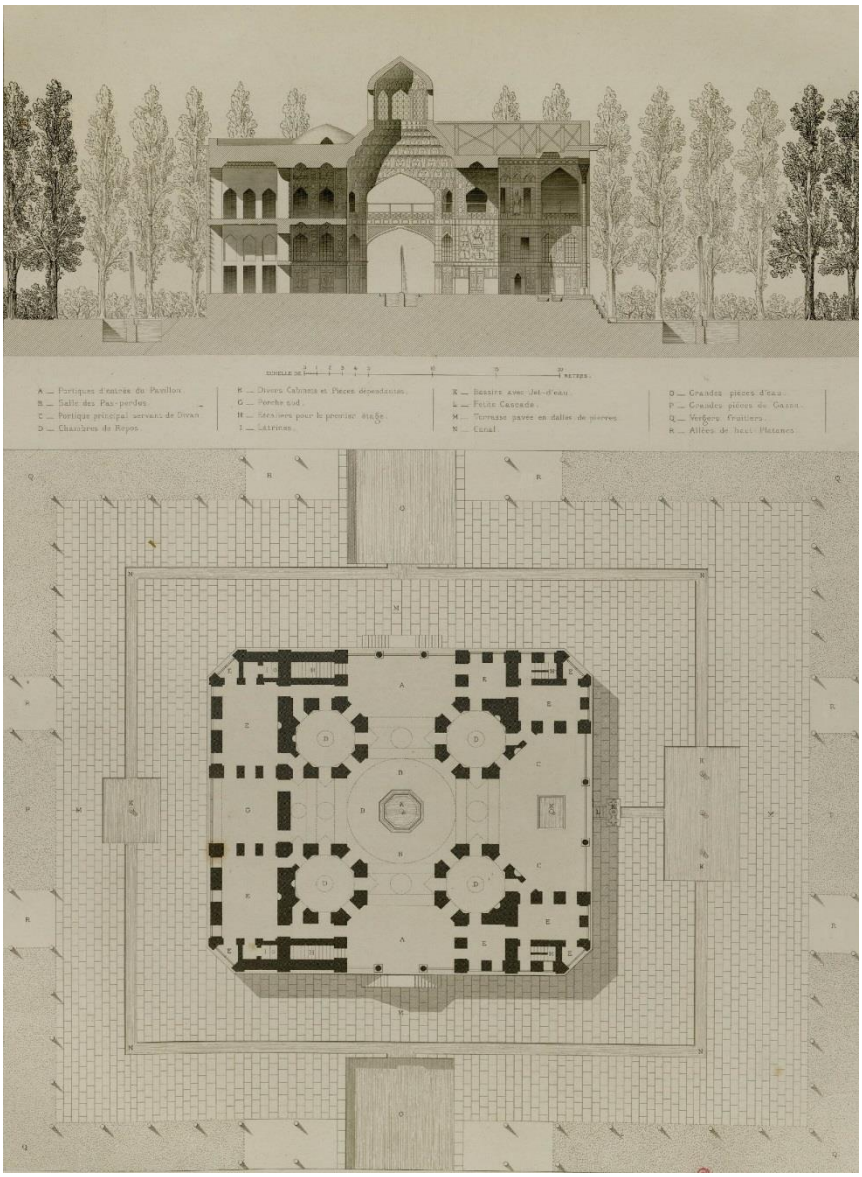
KHIYABAN-I CHAHAR BAGH	24
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	Coste 1851: 53)
Caption	Khaju Bridg over the life giving river of Zayande Roud by Cost



KHIYABAN-I CHAHAR BAGH	25
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste (1867: 71)
Caption	Allahverdi Khan Bridge by Coste 1840

KHIYABAN-I CHAHAR BAGH	26
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1867: 45
Caption	Chahar Bagh Avenue by Pascal Coste

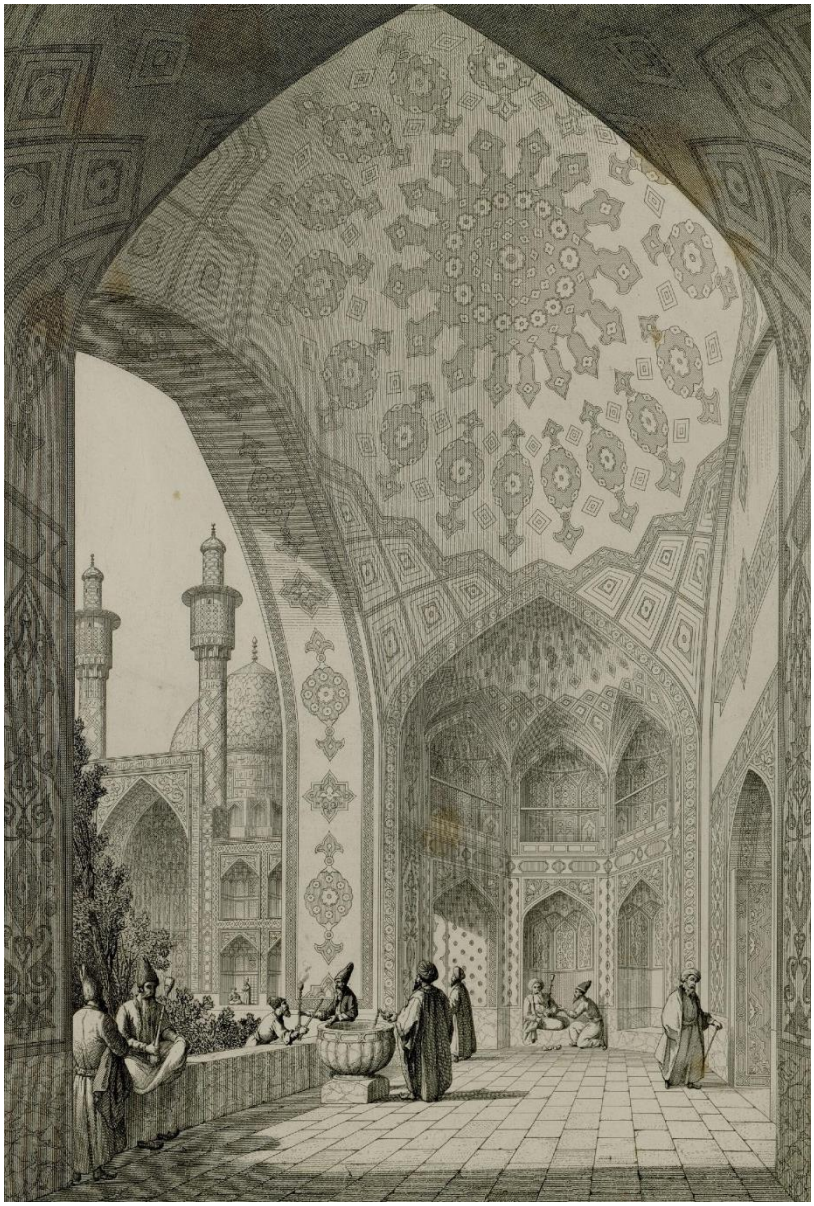
KHIYABAN-I CHAHAR BAGH	27
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1851: 67)
Caption	lithograph by Pascal Coste from Chahar Bagh Avenue which shows the central stream pass over little cascades



KHIYABAN-I CHAHAR BAGH	**28**
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1867: 62
Caption	the Plan and section of the Hasht Behisht Garden by Pascal Coste in 1840

KHIYABAN-I CHAHAR BAGH	29
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1867: 61
Caption	The central pavilion of the Hasht Behisht palace

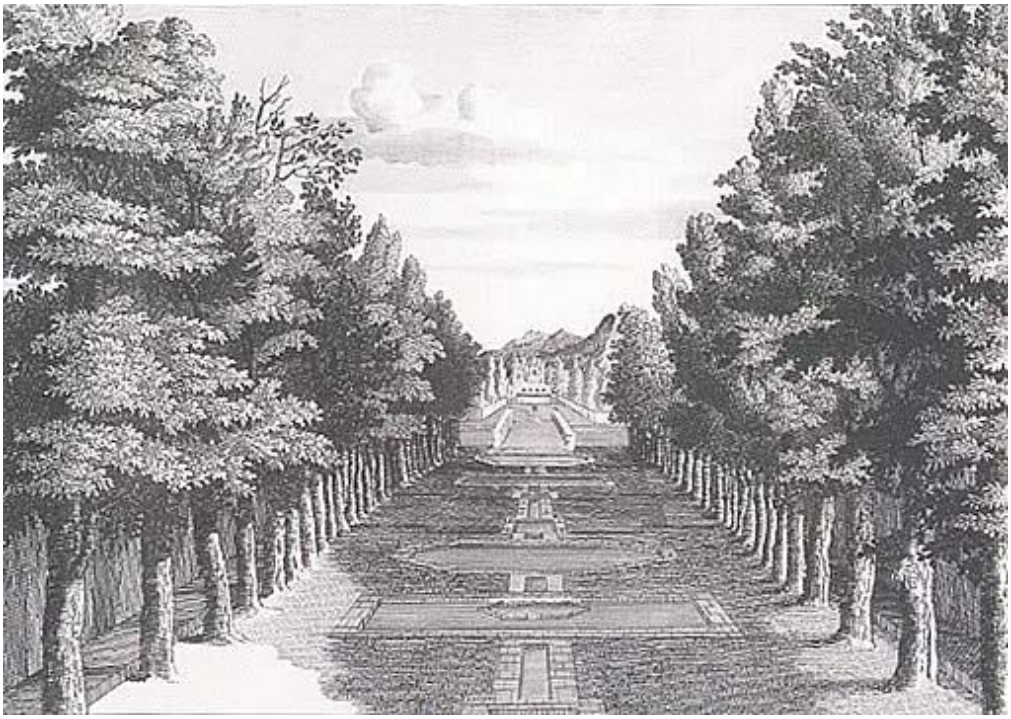
KHIYABAN-I CHAHAR BAGH	**30**
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1867: 63
Caption	Hasht Bihest, the lofty central hall



KHIYABAN-I CHAHAR BAGH	31
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste: 1867: 47
Caption	The entrance to the court yard of the Masjid-Madrasa of Madar-i Shah

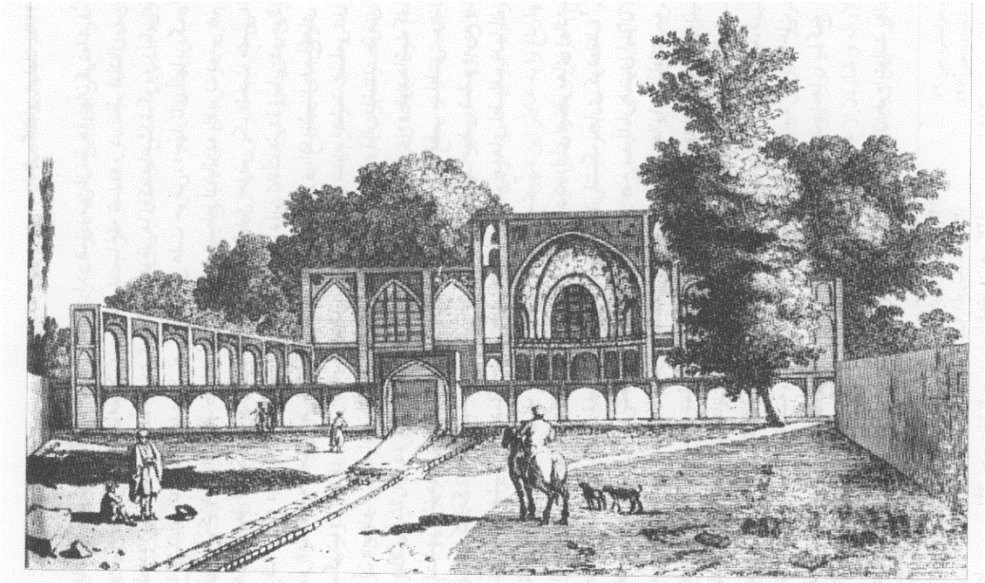
KHIYABAN-I CHAHAR BAGH	32
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste 1867: 53
Caption	the Madr-i shah carvanseray by Coste

KHIYABAN-I CHAHAR BAGH	33
Document type	Drawing
Date	1840
Photographer/ painter	Pascal Coste
Resource	From Coste: 1851: 58
Caption	The court yard of the Wank church in Julfa



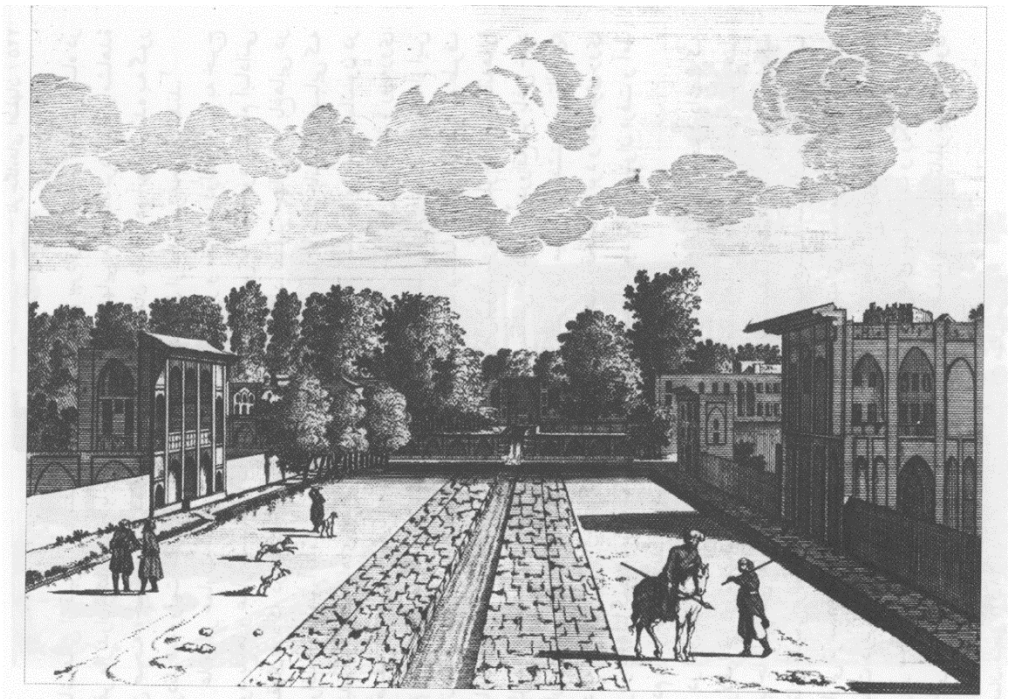
HEZAR JIRIB, ISFAHAN	**34**
Document type	Drawing
Date	Late 17th century
Photographer/ painter	Sir john Chardin
Resource	Ferrier 1996: 61
Caption	the Hezar-Jarib was located at the end of the Chahar-Bagh-e Bala, and its central walkway was a continuation of the latter... It was located on a natural slope, and according to Chardin and several other travelers of the time, it was composed of twelve terraces that followed the slope of the terrain. The spot had a splendid view of the city and the river along the central walkway; at the very top stood the palace of Jahan-Nama

CHAHAR BAGH AVENUE	**35**
Document type	Photograph
Date	19th century
Photographer / Painter	Ernst Holtzer
Resource	Bavand Consultant
Scale	--
Caption	Image of Chahar Bagh in Qajar Dynasty 19th century by Ernest holtzer, German photographer who travelled to Iran in 19th century and spend 20 years of his life in Isfahan



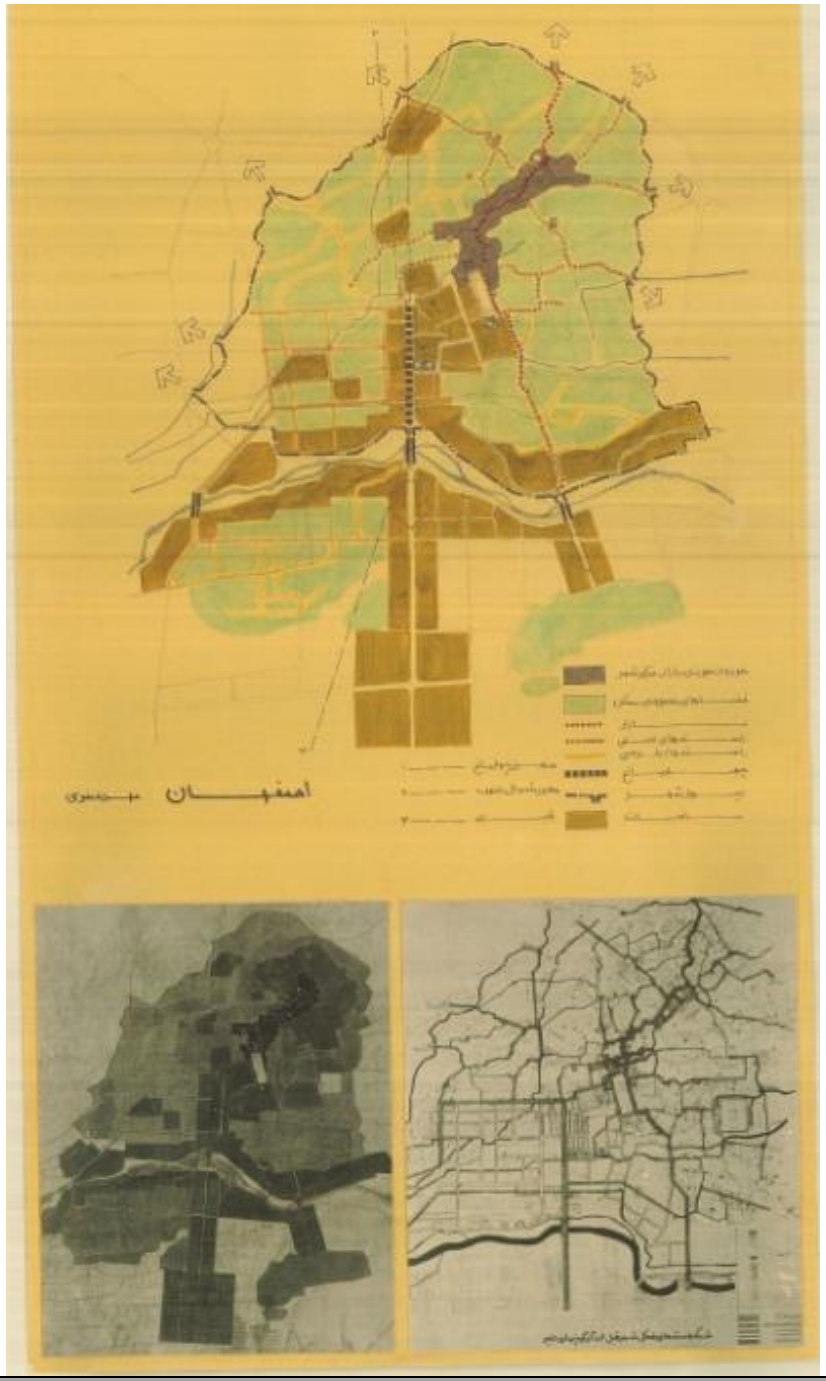
ورودی یکی از باغ‌های اطراف چهارباغ ـ سفرنامهٔ سانسون

CHAHAR BAGH AVENUE	**36**
Document type	Drawing
Date	Late 17th century
Photographer / Painter	Sir john Chardin
Resource	Nicolas Sanson logbook
Scale	---
Caption	One of the Chahar Bagh’s gardens entrance

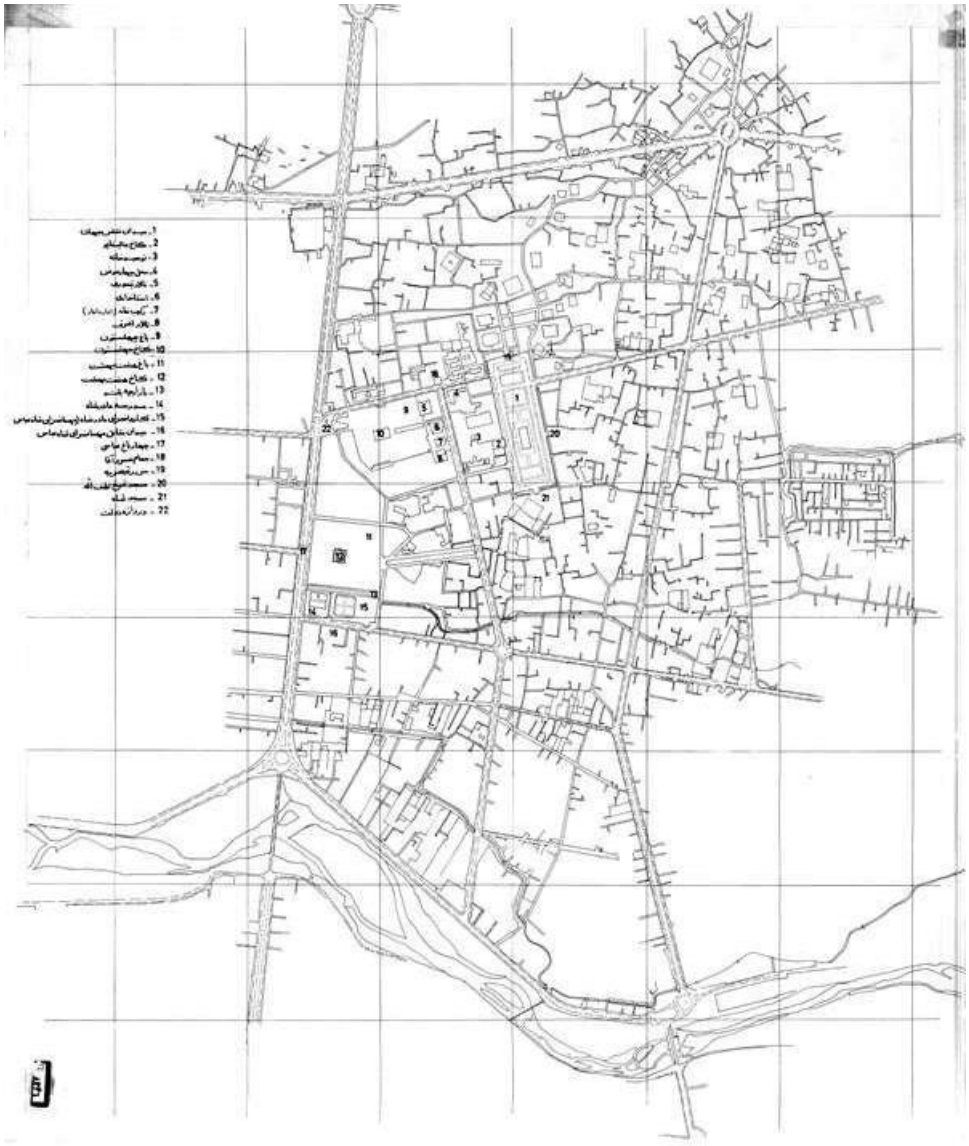


دروازهٔ ورودی به عمارت‌های چهارباغ ـ لو بروین ـ برگرفته از: *Half the World*

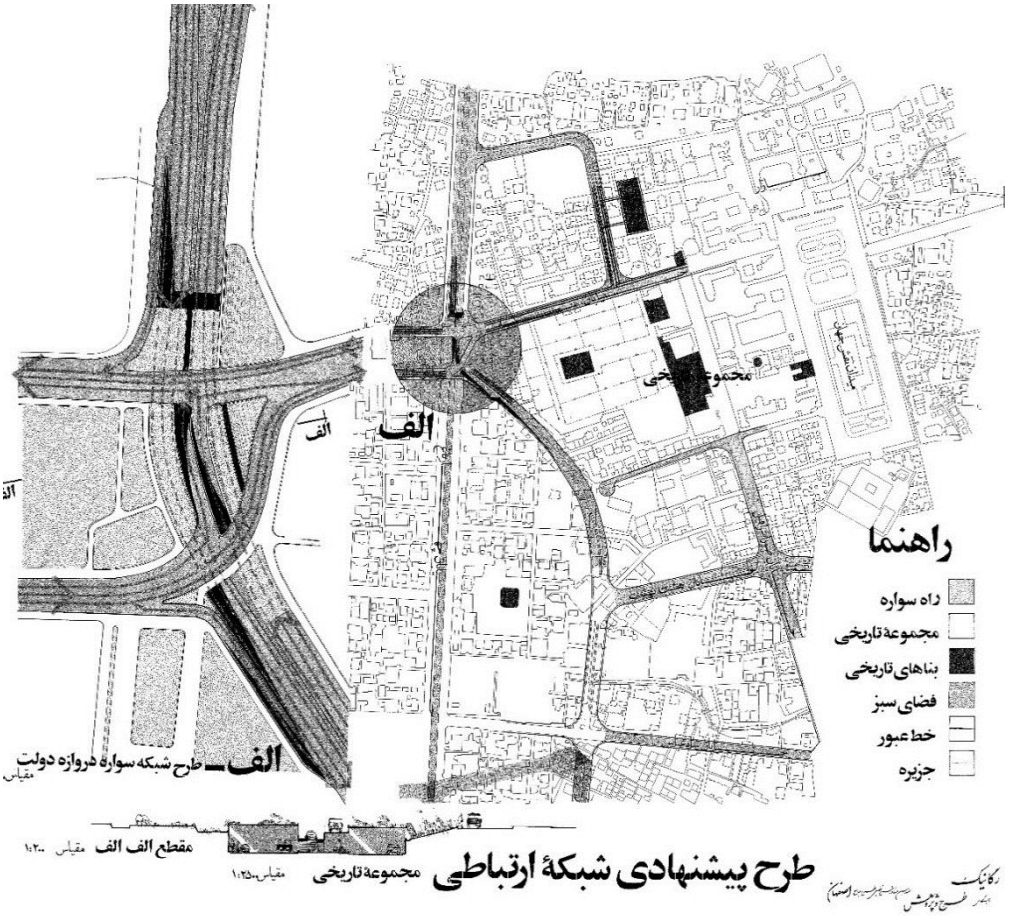
CHAHAR BAGH	**37**
Document type	Drawing
Date	Late 17th century
Photographer / Painter	Sir john Chardin
Resource	Bavand Consultant
Scale	---
Caption	Main entrance to the Chahar Bagh pavilions



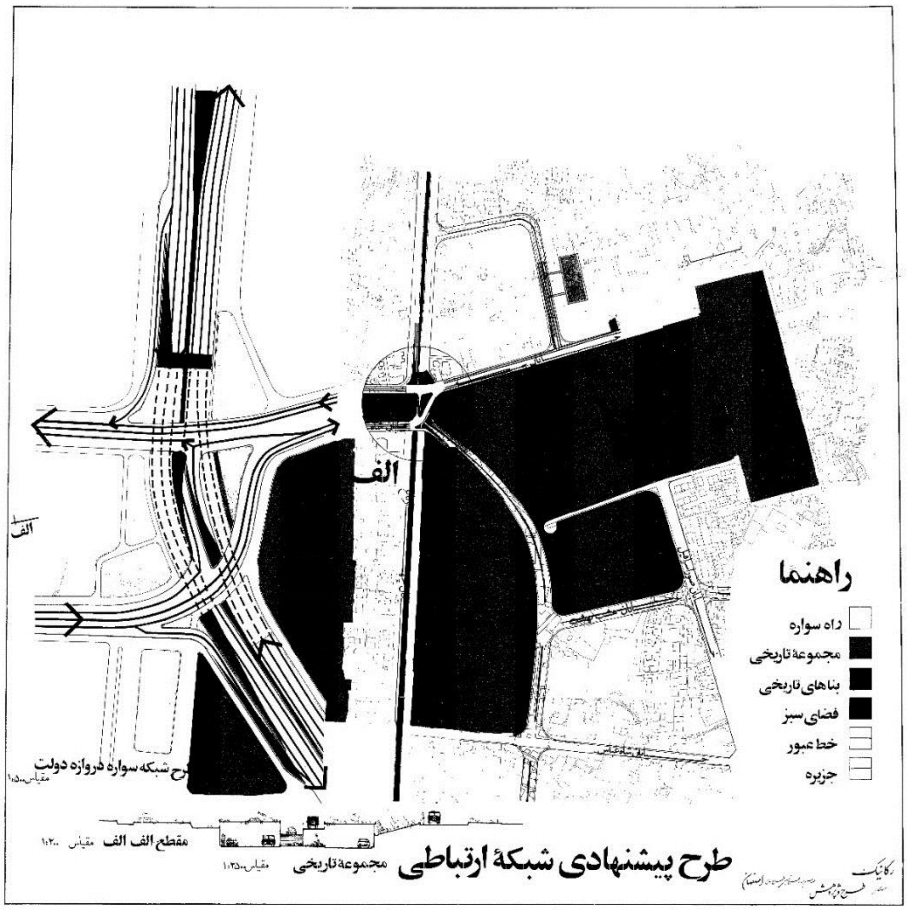
CHAHAR BAGH AVENUE	**38**
Document type	Plan
Date	---
Photographer / Painter	---
Resource	Bavand consultant, Iran
Caption	Chahar Bagh street and its surrounded gardens in Safavid empire



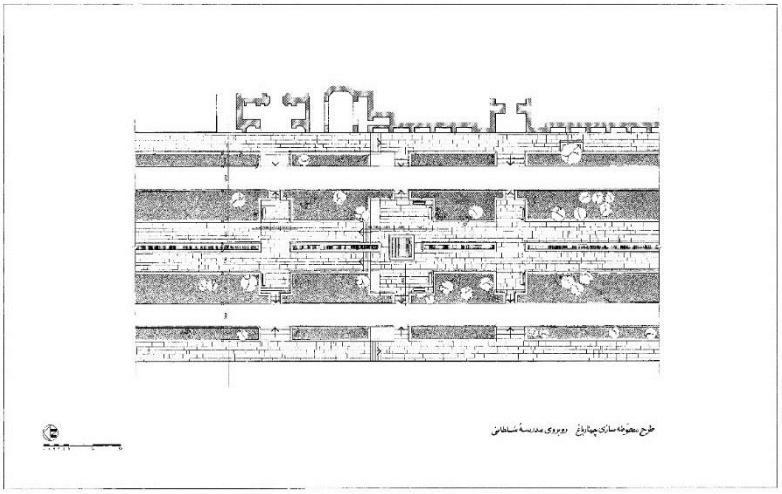
CHAHAR BAGH MAP	**39**
Document type	Plan
Date	--
Photographer / Painter	Bavand Consultant
Resource	Bavand Consultant
Scale	---
Caption	Current map of Chahar Bagh and its surrounded passages



CHAHAR BAGH MAP	**40**
Document type	Map
Date	--
Photographer / Painter	Organic consultant
Resource	Bavand Consultant
Scale	--
Caption	Network Proposition around Chahar Bagh



CHAHAR BAGH MAP	**41**
Document type	Map
Date	--
Photographer / Painter	Organic Consultant
Resource	Bavand Consultant
Scale	--
Caption	Network Proposition around Chahar Bagh



CHAHAR BAGH AVENUE	42
Document type	Map
Date	--
Photographer / Painter	Bavand Consultant
Resource	Bavand Consultant
Scale	1:15
Caption	Land Scape proposition

A PARADISE GARDEN PERSIAN MINIATURE	43
Document type	Miniature
Date	1300c
Photographer / Painter	--
Resource	Museum of Turkish and Islamic Art
Scale	--
Caption	Flowering trees with refreshing stream meandering through and groves of cypress towards a pool with waterfowl representing A Paradise Garden

A PARADISE GARDEN PERSIAN MINIATURE	44
Document type	Miniature
Date	1300c
Photographer / Painter	--
Resource	Museum of Turkish and Islamic Art
Scale	--
Caption	Flowering trees with refreshing stream meandering through and groves of cypress towards a pool with waterfowl representing A Paradise Garden

A FATHER'S DISCOURSE N LOVE PERSIAN MINIATURE	45
Document type	Miniature
Date	16th century
Photographer / Painter	Mirza 'Alî
Resource	The original is in the Freer Gallery of Art, Smithsonian Institution, Washington, D.C.
Scale	--
Caption	The miniature by artist Mirza Ali Presenting an illustration from the masterpiece of Jami, Haft Awrang[68] (seven thrones)

[68] The Haft Awrang is a compilation of seven masnavi poems and constitutes the major poetical work of Jami (d. 1492) composed in the second half of the 15th century.

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A CITY DWELLER PERSIAN MINIATURE	46
Document type	Miniature
Date	1581
Photographer / Painter	Abdollah-e Mozahheb
Resource	http://www.spongobongo.com/
Scale	--
Caption	*This ministure is another Iranain masterpiece from the Haft Awrang of Jami*

THE PHYSICIAN'S DUEL	**47**
Document type	Miniature
Date	--
Photographer / Painter	Aqa Mirak
Resource	British Library
Scale	--
Caption	*The Physician's Duel presenting a dazzling illustration from Nizami's masterpiece, Khamsa (literally "collection of five"). It depicts the tale of rival physicians demonstrating their powers at Shah Tahmasp's court. The spell and a simple floral ingredient of the winner triumphed over the compounded ingredients of the loser, who also lost his life.*

THE ISKANDAR AND NUSHABA	**48**
Document type	Drawing
Date	1539-1543
Photographer / Painter	Mirza 'Alî
Resource	N. Titley:, Miniatures from Persian manuscripts, London, British Library, 1977, p.139
Scale	--
Caption	*It depicts a court scene where Nushaba is addressing Alexander the Great (Iskandar) on the throne. It is from the Khamsa of Nizami folio 48 verso.*

PERSIAN GARDEN CARPET	**49**
Document type	photograph
Date	1670-1750
Photographer / Painter	--
Resource	Victoria and Albert Museum
Scale	--
Caption	Garden Carpet, hand knotted woollen pile on cotton warp and woollen weft, Persian, late 17th 18th century

WAGNER GARDEN CARPET	**50**
Document type	Photograph
Date	17th century
Photographer / Painter	Wagner garden carpet
Resource	Glascow Museum
Scale	4.5in5.5 meters
Caption	*The layout of the carpet evokes an image of the earthly paradise as inspired by both the ancient Iranian 'chahar-bagh' – four-quartered garden – and the description of Paradise in the Quran. Water channels divide the walled garden, and meet at a central pool. On the banks of the waterways trees, bushes and shrubs blossom and bloom all at the same time; and animals (both predators and pray), birds of all types, multi-coloured butterflies and moths inhabit the garden. Fish and ducks populate the waterways, who's shimmering waters are cunningly illustrated by the drawing of a lattice pattern with varied thicknesses of line and colour.*

PERSIAN MIHRAB CARPET	**51**
Document type	photograph
Date	19th century
Photographer / Painter	---
Resource	Iran national museum of carpet
Scale	--
Caption	Mihrab Carpet, known as Paradise gate

PERSIAN GARDEN CARPET	**52**
Document type	photograph
Date	Late 16th and early 17th
Photographer / Painter	--
Resource	Iran national Museum of carpt
Scale	--
Caption	Garden Carpet from kerman showing similarities with Chahar Bagh Avenue, Isfahan

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